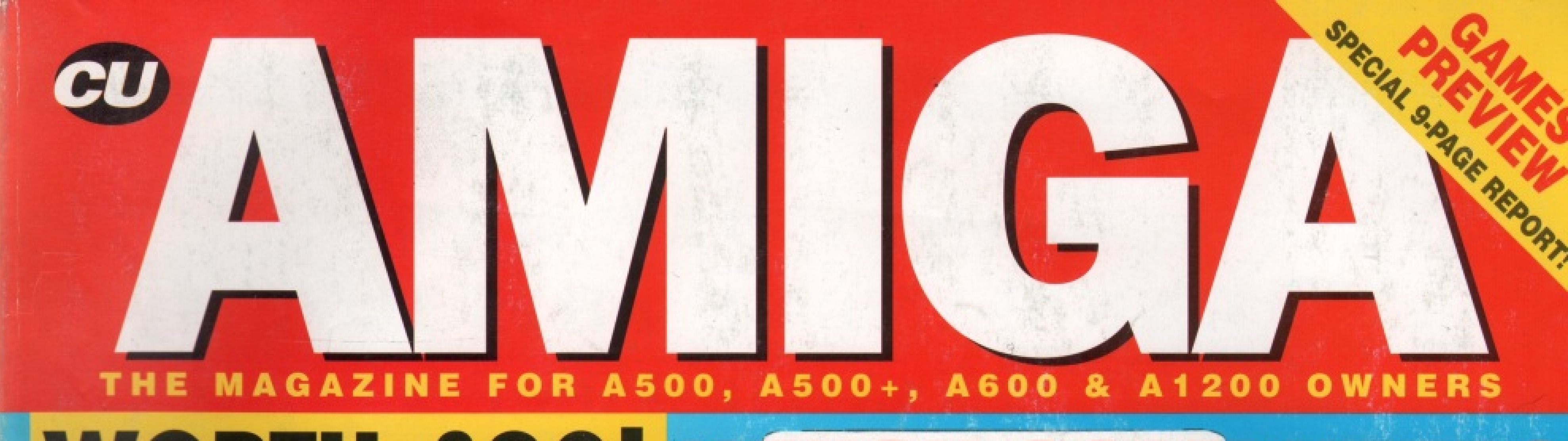
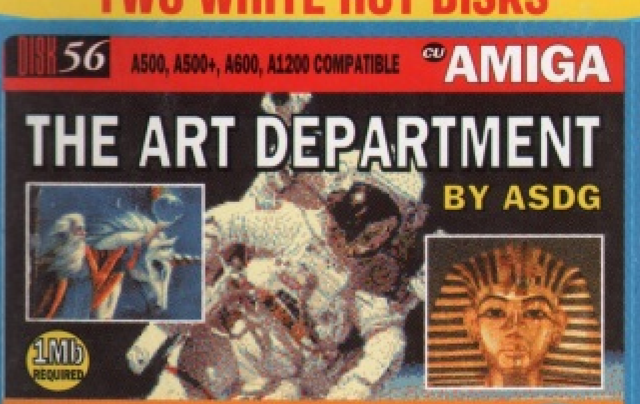


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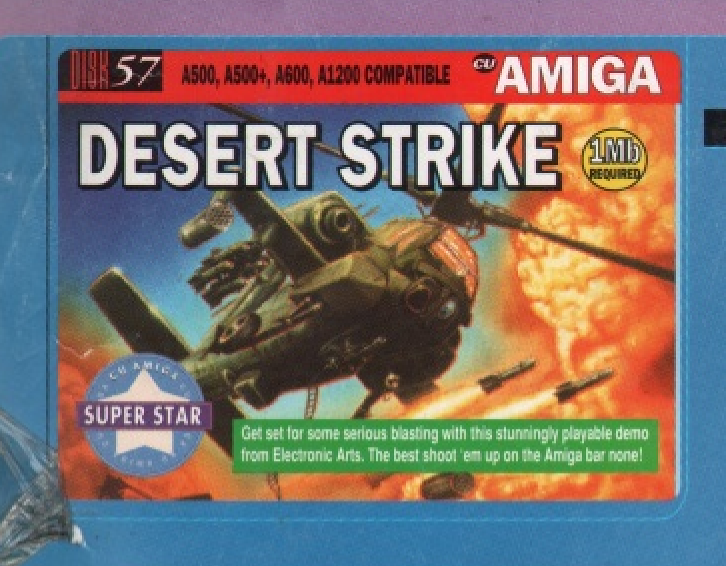
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TWO WHITE HOT DISKS





NO DISK ATTACHED?
ASK YOUR NEWSAGENT



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WHICH COMPUTER?

which COMPUTER?

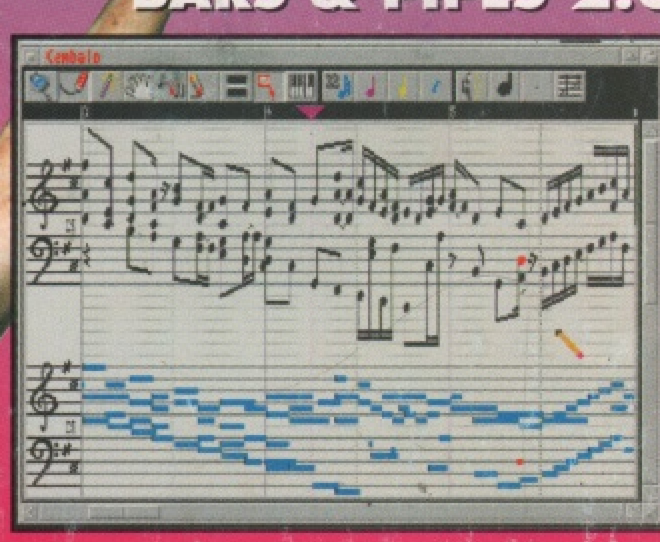
THE A1200 vs ATARI'S FALCON vs THE ARCHIMEDES 3010 vs PC 486 vs THE NEW A4000/030

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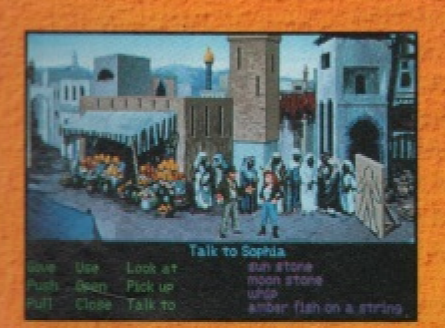
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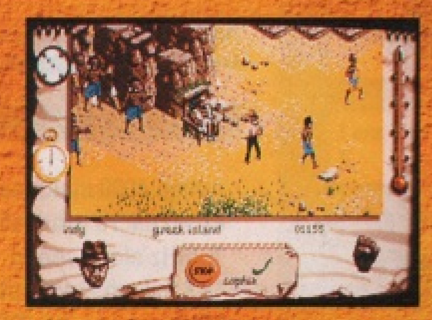
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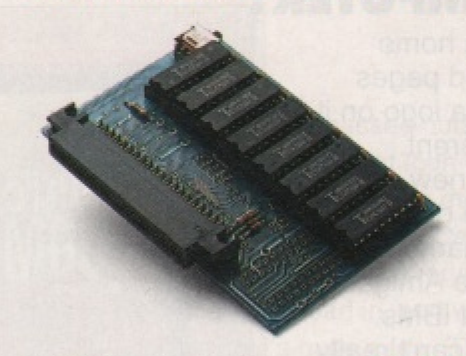
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CU AMIGA

CONTENTS

24 WHICH COMPUTER?

It isn't often that you see a home computer in these hallowed pages that doesn't have an Amiga logo on it. This month things are different.

Since the launch of the new A4000/030 machine we've decided that the home computer market has got too crowded. There are Amigas, Ataris, Acorns, Apples and IBMs. Surely all these machines can't really be the same? Obviously not. For a start, some are more expensive than others.

What are all these machines for, what are the differences and which is best for what? That's what our team of experts are trying to find out on page 24.





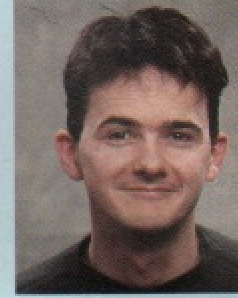


147 AMIGA WORKSHOP

If you're interested in the more serious side of the Amiga, then this is the place for you. Each month our team of experts detail how to get the most out of your machine and the many and varied software packages that exist to help you do just that. This month we re-introduce the popular DIY section, with a complete step-by-step to help you build your own sampler. In addition we continue our regular *D-Paint*, Workbench and AMOS tutorials. Last, but not least, there's more Amiga books and clubs reviewed plus loads of reader's letters answered in our own indominable style.

OFF THE CUFF

EDITORIAL



Dan Slingsby – Editor

Howdy partners! This month we've got the computer equivalent of Gunfight at the OK Corral as six of the best home computers money can buy, slug it out to see which of them can truly claim to offer the best all round-performance. Will the A1200 come out tops, or will Atari's Falcon take the crown? To find out, turn to our lead feature on page 24.

Elsewhere this issue, you've probably already discovered the covermounted program, *The Art Department*. This would usually cost an arm and a leg to buy commercially, but we've snapped up the rights to give it to you for absolutely nothing. In case you're not familiar with the package, it's a graphics program which allows you to create a whole range of weird and wonderful effects at the click of a button.

If it's games you're after, then you'll doubtless find something to interest you in this month's specially extended First Impressions column. We've got a hot-off-the-presses report from the European Computer Trade Show and preview ALL the hot games you'll be playing later this year! We've also snagged the world's first review of Dino Dini's *Goal!*, the spectacular follow-up to *Kick Off 2* – it's a biggie and you can ONLY read about it here in CU Amiga!

Other things to take note of this issue are our comprehensive 32-page AMOS guide tucked away between pages 146 and 147; the superb free video offer from Burgess Video Group; and our Buyer's Guides, which this month concentrate on External Disk Drives and Business Software.

And finally, before I leave you in peace, I'd just like to pass on my heartiest congratulations to Jon and Tony for their excellent performance in the Sensible Soccer World Cup. They finished bottom of all the mags taking part, so they're fired!

NEXT ISSUE ON SALE 26TH MAY

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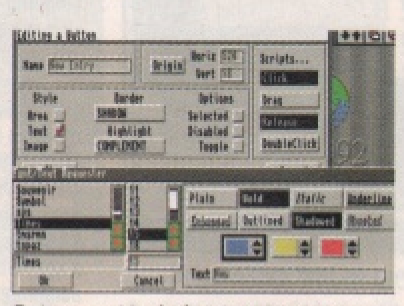
GET SERIOUS

PRODUCTIVITY REVIEWS PRODUCTIVITY REVIEW

The Amiga music scene is taking off fast and we've got it covered. This month there's two new software packages for budding musicians at both ends of the scale – for the hobbyist, page 102, and the professional, page 106 – including an exclusive look at the synth you can put in your Amiga, page 108. Plus there's the usual range of top quality productivity software examined in depth.



The PC1204 is not just another RAM expansion for your A1200 – it actually makes Commodore's super slick machine even faster! And that's before you add the optional co-processor, too. See it first in CU Amiga on page 121.



Do you want to design your own program but can't be bothered learning the language? Well, look out for this authoring package on review on page 114. Can *CanDo* live up to its name?

SCREEN SCENE

GAME REVIEWS GAME REVIEWS GAME REVIEWS

If you ever doubted that CU Amiga has the best games coverage then think again! To prove that we're top of the heap not only have we brought you two exclusive reviews but we've got a special guide to ALL the major games that'll be appearing on the Amiga over the next 12 months. But, what about the current crop of gaming greats? Will *Superfrog* smash *Zool* out of existence? For the answer to this and many other questions read on...



Exclusive – Dino Dini's latest footie game hits the Amiga. Read about this Superstar-rated sensation first on page 48.



Will the Allies take the beaches successfully on *D-Day*? Only you can decide in another exclusive review on page 54.

COVERDISKS

This month there's more than ever before on our TWO packed coverdisks. We promised it and now you've got it – *Art Department* in full. Plus, there's some AMOS routines to make your programs shine. Also, for war fanatics everywhere TWO whole *Desert Strike* missions.

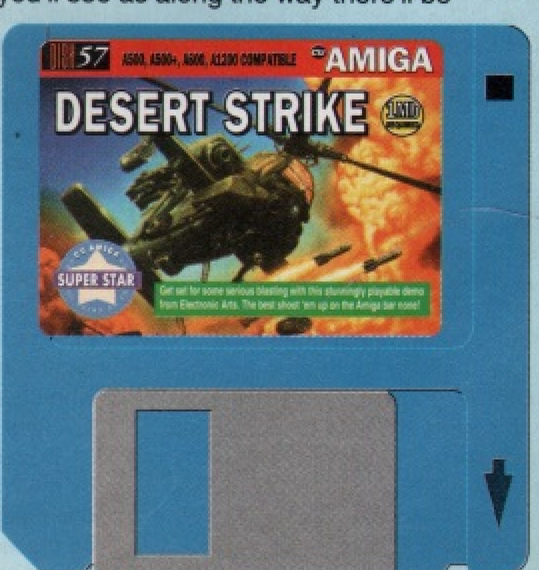
DISK 56 — PAGE 14

This month we have surpassed ourselves. If you thought the AMOS disk was tough to beat then you're in for a shock. On this month's disk you will find the most essential graphics tool for the Amiga – ASDG's *The Art Department* (*TAD*). This software can manipulate virtually every aspect of any graphics image file you care to load in, and with an impressive array of loading options that's quite a few. The contrast, brightness, colour and gamma correction tools make it invaluable for any video work. Coupled with the extensive dithering modes and scaling facilities it is also a must for anyone with a printer – you can even use *TAD* to colour separate files for DTP work. Sprinkle on a few special effects and you have the most unmissable utility ever. One of the best programs around.



DISK 57 — PAGE 18

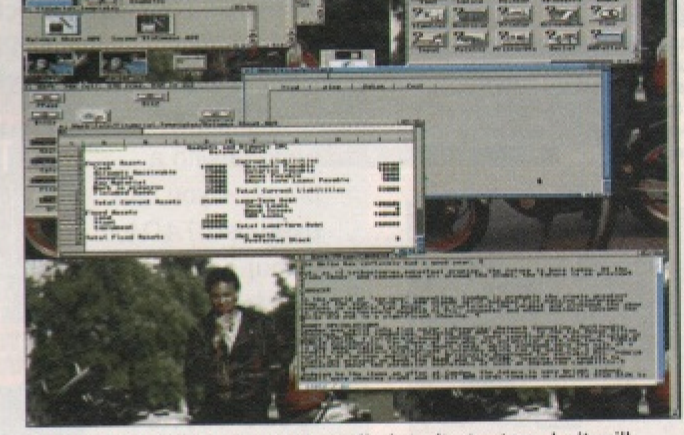
When we saw *Desert Strike* we gave it a whopping 93% and a CU Amiga Superstar. So, we thought it only fair that you should be given the chance to play this smash shoot 'em up too. Take the controls of the World's most feared combat helicopter and guide it through TWO complete missions. Smash the evil dictator, General Kilbaba, by hitting him where it hurts. First, crush his radar sites so that the SAMS can't track you as you head for the airport. Then, catch his planes like sitting ducks with a few carefully placed air-to-ground missiles. That's not the only action you'll see as along the way there'll be plenty of opportunities to blow up SAM missile launchers, rescue friendly flyers, steal enemy ammo and fuel, straffe defenceless buildings and rain lead death down on Kilbaba's troops. For peace lovers everywhere – NOT!



CU NEWS

A4000 UPGRADES ON THE WAY

Information is already beginning to circulate about possible Commodore manufactured upgrades for the A4000 and other machines. The first of these will most likely be a display enhancer, rather like the Retina card reviewed last issue, which will offer extended resolutions, true 24-bit colour and flicker-fixer capabilities.



This would seem to tie in with the retargetable graphics routines included with Workbench 4, which is now in testing with some developers. These routines will allow any software to take advantage of the extended display options available through the card, and will result in applications behaving on the Amiga more like their counterparts on the Macintosh.

As ever, the release schedule is sketchy, but with Workbench 4 now heavily into its test cycle it will probably be towards September at the earliest.

Unfortunately for music fans there is very little on the grapevine about a DSP module becoming available. The Atari Falcon is finally available in the shops sporting its Motorola 32MHz DSP, and may win some friends in the music industry unless the Amiga soon acquires the capability to compete in this area.

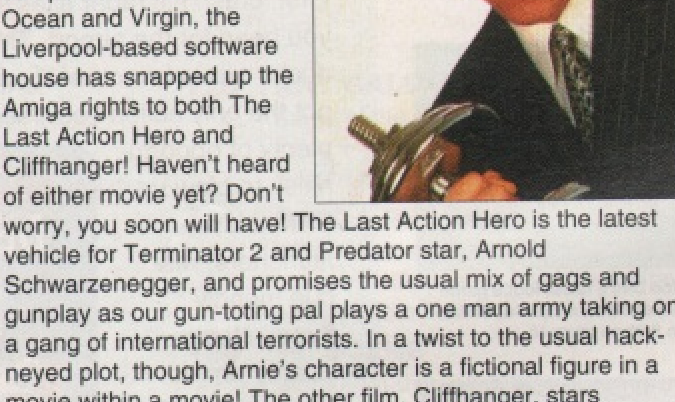
ADPRO ON TOAST

Art Department Professional, the high end version of this month's free coverdisk application *Art Department*, has now been upgraded to support NewTek's Video Toaster. *ADPro 2.3* can read and write broadcast quality images in the Toaster's Framestore format. Videographers now have direct Framestore-to-D1 digital video connection using *ADPro's* ABEKAS digital video driver. This is today's most effective means of moving video data to and from the Amiga, and has been used in high profile productions including Quantum Leap and the American Music Awards.

The new 2.3 update also has a direct memory link for *DPaint 4 AGA* and the 24-bit *Opal Paint*. This means that you can have both *ADPro* and your paint program running simultaneously, and work on the same image or animation in both applications, with no need to continually save files from one to be loaded into the other. For further information, contact: ASDG, 925 Stewart Street, Madison, Wisconsin in, 53713. Tel: (0101) 608 273 6585.

THE LAST ACTION HERO

In a surprise move, CU AMIGA can exclusively reveal that Psygnosis have scooped two of the hottest movie licenses of the year. Beating off stiff competition from both Ocean and Virgin, the Liverpool-based software house has snapped up the Amiga rights to both The Last Action Hero and Cliffhanger! Haven't heard of either movie yet? Don't worry, you soon will have! The Last Action Hero is the latest vehicle for Terminator 2 and Predator star, Arnold Schwarzenegger, and promises the usual mix of gags and gunplay as our gun-toting pal plays a one man army taking on a gang of international terrorists. In a twist to the usual hackneyed plot, though, Arnie's character is a fictional figure in a movie within a movie! The other film, Cliffhanger, stars Sylvester Stallone in which the Italian Stallion takes on (surprise, surprise) a gang of international terrorists! Talk about originality, eh?! This time, Stallone plays a mountain tour guide who becomes embroiled in a deadly terrorist bomb plot which involves a race against time to thwart their plans.



Both movies should be out for the summer and are backed by multi-million dollar promotional campaigns. Arnie's even coughed up the readies for a special Last Action billboard to be placed in orbit by NASA's Space Shuttle, making it the first outer space film promo!

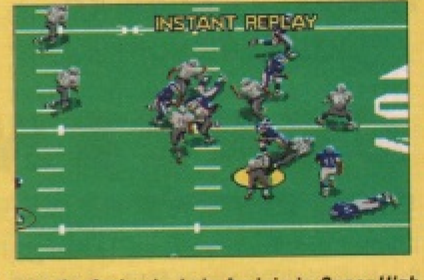
MORE SEGA GAMES HIT THE AMIGA

Virgin are currently in secret talks with both Sega and Acclaim and are on the verge of signing an exclusive contract to convert some of the Megadrive's top titles onto the Amiga. This could open the floodgates to such games as *Ecco the Dolphin*, *Terminator 2 – The Arcade Game*, *Joe Montana*, *Tazmania*, *Streets of Rage 2* and *Mickey Mouse's World of Illusion* appearing on the Amiga.

Ecco is Sega's ground-breaking arcade adventure which pits the main character, a dolphin, up against various underwater evils and ultimately a group of particularly nasty aliens. While this may sound a bit 'off the wall', it won critical acclaim from all the big Sega magazines, including sister mag, MegaTech. Meanwhile Sega's partnership with Disney also yielded the massively successful *World Of Illusion*, which stars Mickey and Donald. Apart from its stunning graphics, *WOL* is actually three games in one, with the action dependent on which of the two characters you're controlling.



Away from the cute stuff and in the realm of rock-hard action is *Streets Of Rage 2*. This beat 'em up has been a massive hit on the currently *Streetfighter*-starved Megadrive. It features four main characters on a quest to knock seven bells out of the villains in their neighbourhood, armed only with a dazzling array of moves and whatever weapons come to hand. *Joe Montana*, on the other hand, is a spectacular American Football sim to rival even EA's acclaimed *John Madden* game. It features absolutely tons of digitised speech and admirably straightforward gameplay – even for those of us who haven't got a clue about the real life game.



Other impressive Sega titles that could find their way onto the Amiga include Acclaim's *Super High Impact Football*, another American footy sim, only this time there's the option to beat up the other team and play dirty, and *Arch Rivals*, one of the most realistic basketball sims ever!

Unfortunately, Sega's flagship title and marketing lifesaver, *Sonic The Hedgehog*, doesn't look likely to appear on the Amiga. The blue hedgehog is most definitely going to stay Sega-specific for the foreseeable future.

CDTV MEMORY FIX

Even though the CDTV was supposed to be 100% compatible with standard Amiga software, this was soon found to be wishful thinking. The incompatibility is nothing to do with new chipsets, processors or graphics modes, but something far simpler – the CD drive. To keep the access speed at a decent rate, a RAM buffer is put aside for the CD drive. This is taken from the 1Mb of onboard RAM, leaving less than 1Mb for everything else. In the event that a game loaded from floppy disk uses the full 1Mb, there's simply not enough memory for it to run.

CD Free have a solution in the form of a switch, which disables the CD drive, giving back the buffer to the system. CD Free claim this cures 99% of CDTV compatibility problems. See how it fares when we test it next month. For more info, contact CD Free on 0388 813661.

TV PAINT 2.0

Originally developed for the Harlequin graphics board, *TV Paint* has established itself as the best 24-bit paint package on the market. Now it's been upgraded to version 2.0, and redesigned with Workbench 3.0 users in mind. Improvements now allow you to open up several menu windows at once, zoom the whole screen in and out, and have separate screen and working page resolutions. When used with a pressure-sensitive graphics tablet, the pressure now affects the brush size, as well as the density. Pressure sensitivity can be toggled on or off. Other new features include chalk and crayon modes, blurred transparencies, and improved ARexx control. For further information contact: Amiga Centre Scotland, Harlequin House, Walkerburn Peeblesshire, Scotland, EH43 6AB. Tel: 089 687 583.

SILICA'S SUB-£200 AMIGAS

Have you ever wondered what happened to all those A500s, after they were superseded by the A600 and A1200? Some of them have turned up at Silica, who are knocking them out at a very tempting £199. If you fancy a bit more than the standard 1Mb A500, there's also a 2Mb version selling for just £229, which includes a software bundle consisting of *Zool*, *Pinball Dreams*, *Striker* and *Transwrite*. For more information, contact: Silica Systems, 1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX. Tel: 081 309 1111.



LEMMINGS HIT THE CHARTS

Lemmings on The Chart Show? It could happen sooner than you think! Psygnosis have joined forces with producers Ian Richardson and Nick Coler (whose previous clients include The KLF), and come up with the official *Lemmings* pop single.

Using samples from the game ('Oh no!', 'Let's go!' etc.), the track works in snippets of rap and soul, throws in a few catchy riffs, and wraps it all up in a bouncy dance beat. For those who think that bit bigger, there's the 12 inch vinyl and CD, which include the extended BeBop and Hamster Jam mixes. How will it fare against the trendy Joey Negro mixes of *Mega-lo-Mania*, recently released from the Sega MegaDrive game?

Mark Blewitt of Psygnosis commented: '*Lemmings 2* is riding high in the Amiga charts and the console charts. The record should do well in the singles chart'. *Lemmings* is released on 4th May on Synthetic Records, available on 7", 12", cassette and CD.

OCEAN SIGN MILLION POUND DEAL

Computer entertainment software is officially B-I-G business! One of the UK's most successful independent games producers, Digital Image Design, have recently signed a SEVEN FIGURE publishing deal with Ocean for exclusive rights to their next six products. Set up in July 1990, DID have already got an impressive list of gaming credits to their name, including *F-29*, *Robocop 3* and the space-combat classic, *Epic*. Gary Bracey, Ocean's Software Director, believes that DID are 'without question the leading light in 3D games development' and that Ocean are now 'well placed to make serious in-roads into the future of CD gaming'. For further info on the next two releases from DID, check this month's First Impressions.

TURNING JAPANESE

The A1200 was recently launched in Japan amid a blaze of publicity and an advertising campaign that embraced all the major computer magazines. Traditionally, the Amiga has failed to make much of an impact in the Land of the Rising Yen, so it's encouraging to see Commodore attempting to break the strangle hold of the PC and consoles with their newest machine. Even Login magazine, the country's top computer entertainment title, has started to cover Amiga games, which can't be a bad thing.

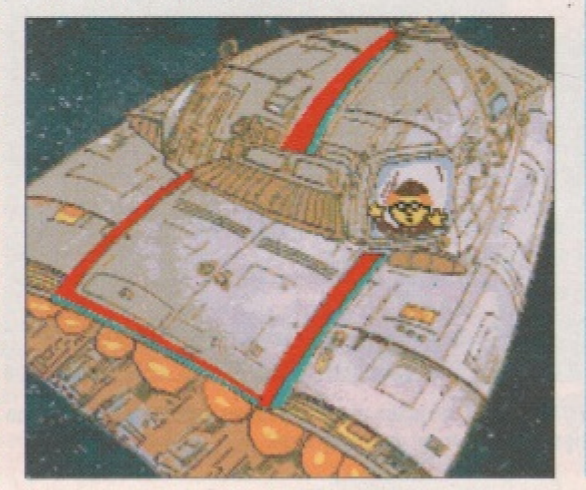


MEMORYMASTER 1200

They're coming in thick and fast now – 1200 memory expansions are appearing from all corners of the globe. The MemoryMaster 1200 is the latest to be announced, and hails from BSC in Germany. The trapdoor board expansion comes populated with 1Mb Fast RAM, expandable to 9Mb, and has provision for either a 68881 or 68882 co-processor, should you wish to add one. Further 4Mb ZIP DRAMs can be installed to give a maximum of 9Mb on the board, in addition to the 2Mb internal Chip RAM. For further information, contact BSC on 010 49 89 357 1300.

ALISTAIR IN OUTER SPACE

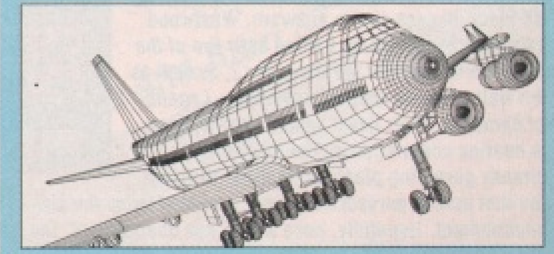
Nothing to do with the defunct pop group of the same name, Altered Images have just released their CDTV version of *Alistair in Outer Space*, adapted from the Penguin children's book. Aimed at 5 to 9 year olds, it's a 26-page narrated story book, with the added attractions of simple sub-games and a colouring book mode. It's currently available at £24.99, but Altered Images are still on the lookout for a major distribution deal. Interested parties should contact: Altered Images, 39-41 Roff Avenue, Bedford, MK41 7TH. Tel: 0234 340722.





VECTOR CLIPART

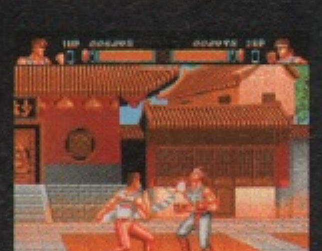
There's a whole new concept emerging in the world of 3D computer graphics: raw, unrendered 3D clipart. Instead of solid objects and animations, these are just sets of vectors, which can be used however you like, with the software of your choice. Viewpoint have a massive range of 3D clips available, with large sections devoted to anatomy, cars, animals, aircraft, boats, sport, trains and various miscellaneous items. Viewpoint publish a catalogue with large illustrations of all the clips available. For more info, contact: Viewpoint, 870 West Centre, Orem, Utah, 84057, USA. Tel: 0101 801 224 2222.



»

AMIGA CHARTS TOP TEN

Lots of new releases are vying for the top spot in this month's Amiga top ten, but the coveted honour this time around goes to Electronic Arts' *Desert Strike*, straight in at number one.



1. Desert Strike (Electronic Arts)
2. Body Blows (Team 17)
3. Chaos Engine (Renegade)
4. Superfrog (Team 17)
5. Lemmings 2 (Psygnosis)
6. Indiana Jones IV (US Gold)
7. Wing Commander (Mindscape)
8. B17 Flying Fortress (Microprose)
9. Nigel Mansell's World Championship (Gremlin)
10. Sleepwalker (Ocean)

STREET FIGHTER 2 PINBALL

That's right, Blanka, Chun-Li, Ken and co., are all set to star in their own pinball game! Designed by pinball kings, Gottlieb, in close association with Capcom, the new table features the car crunching sequence from one of the sub-games in the original video game. A miniature car is displayed beneath the playfield and this gradually gets crunched up as the pinball crashes into it. Chun-Li's helicopter kick has also been adapted for the table so that players must time their ramp shots perfectly in order to bypass the flipper and sneak by Chun-Li's kick. Watch for it at an arcade near you soon!



MICE IN SPACE

If and when the often aborted Discovery shuttle mission eventually launches it will be carrying a piece of history with it. On-board is a piece of technology that has taken Microsoft years to develop. This hi-tech peripheral is a mouse that will actually work in zero-gravity, as well as putting up with all the other rigours of space.

THE COMMERCIAL PROGRAMMER'S GUIDE 2ND EDITION

If you're interested in writing your own commercial games, you'd do well to learn about some of the pitfalls before you go diving in. The 2nd edition of the Commercial Programmer's Guide has just been published, and offers advice on organising your code, developing your ideas into commercially viable forms, dealing with copyright, presenting yourself and your game to publishers, and publishing your own games. It's priced at £9.95 (ISBN: 07457 0155 8). For more info, contact Kuma on 0734 844335.

CALLING ALL CODERS

Have you written a cunning utility, a lightning fast game, or a professional quality application? Do you want to make some money from it? If so, RBF Software want to hear from you. They currently hold distribution rights to the highly popular *OctaMED Pro*, and the genealogy program *A-Gene*, and are on the lookout for new products. As an added incentive, there's a competition being run for the best programs. First prize is an A1200, second is a hand scanner, and third is a portable colour LCD TV. Any submitted programs must be the author's own work, and must not have been released as PD. RBF's policy of keeping retail prices as low as possible has worked well, and if you'd like to get in on the act, send your programs to: RBF Software (CU), 169 Dale Valley Road, Hollybrook, Southampton, SO1 6QX, England.

AMOS PRO PRICE DROP

AMOS Professional has just had its price reduced from £69.99 to £49.99. The global economic slump has lead to the drop in price, a measure necessary to keep the user base growing, and keep the AMOS Professional support going. The update disk is also now available, giving A1200 and A4000 owners the opportunity to get into AMOS Pro. The PD update also fixes the bugs which caused incompatibility with earlier versions of AMOS, Compiler and 3D. For more information, contact Europress Software on 0625 859333.

NEW HIGH RES MONITORS

If you've got yourself a spanky new A1200 or A4000, how are you to get the best from your machine's wonderful new AGA graphics modes? New Horizon Computers have just released a couple of new monitors that could just hold the answer. Coming in 15 inch and 17 inch screen sizes, the Vanilla monitors use FST technology to give a flatter picture with minimum distortion. Hi-res graphics will benefit from the 0.28mm dot pitches employed by both models, which combined with an 80MHz bandwidth, should give crystal clear pictures. For more info on the Vanilla range, contact New Horizon Computers on 0989 750260.

WESTWOOD LOOK EAST

Although Westwood Studios have dropped plans for any further Amiga releases, all is not lost. The American-based development company are actively seeking a European partner to convert their PC titles over to the Amiga and are close to signing a deal with a leading UK team. In case you're unaware, Westwood were the creative force behind both *Eye of the Beholder* and *Eye of the Beholder 2*, as well as the well-received graphic adventure, *Legend of Kyrandia*. Their latest game, *Land O' Lore*, is nearing completion on the PC and is already garnering plenty of interest. Utilising the first person perspective, *Land* is almost twice the size of *EOTB2*, and is set in the real world rather than the usual dungeon environment. Hopefully, once a deal has been signed, the Amiga version can get underway soon!



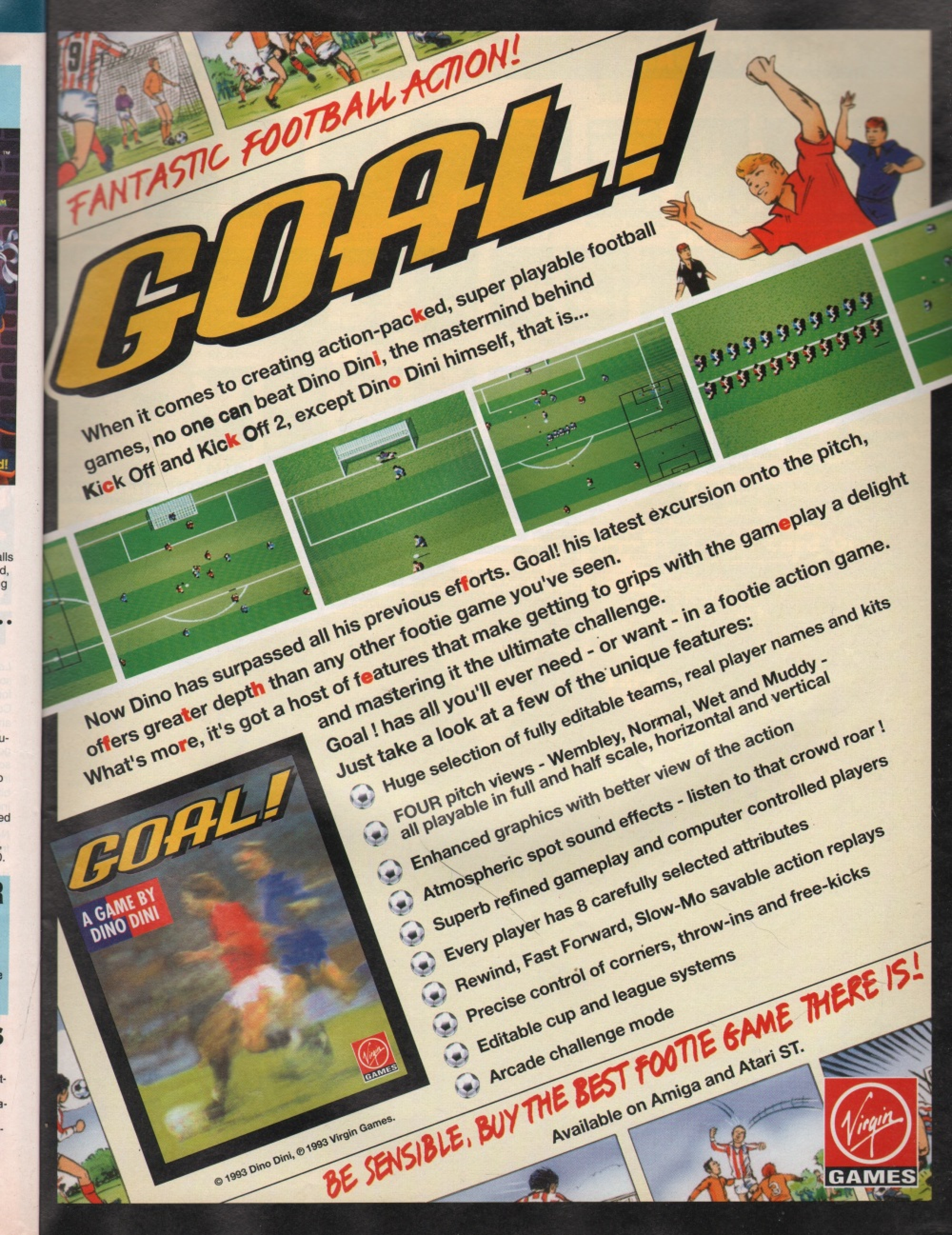
HISOFT ACQUIRES AVR

Well known for their Amiga digitisers, including Mastersound and Clarity 16, and the ground-breaking real-time video/sound digitiser Videomaster, Audio Visual Research have been bought by HiSoft. Development and expansion of AVR's range will continue through HiSoft, who promise new hardware and multimedia products in the future. For further info, contact: HiSoft, The Old School, Greenfield, Bedford, MK45 5DE. Tel: 0525 718181.

ONE FOR THE LADIES

Does your joystick really satisfy? Don't you ever want something just a bit... bigger? Or maybe you're one of those who thinks the base of the joystick gets in the way, right at the critical moment. Well get a load of Logic 3's Free Flight!

This monster of a stick senses movement with a set of analogue optical switches, so there's no need for a base. It was designed by a couple of pilots, primarily for use in flight simulations, but it does have other uses... Contact Logic 3 on 081 902 2211. *[Photo withdrawn in the interests of decency – Ed]*



FANTASTIC FOOTBALL ACTION!
GOAL!
When it comes to creating action-packed, super playable football games, no one can beat Dino Dini, the mastermind behind Kick Off and Kick Off 2, except Dino Dini himself, that is...
Now Dino has surpassed all his previous efforts. Goal! his latest excursion onto the pitch, offers greater depth than any other footie game you've seen.
What's more, it's got a host of features that make getting to grips with the gameplay a delight and mastering it the ultimate challenge.
Goal ! has all you'll ever need - or want - in a footie action game.
Just take a look at a few of the unique features:
Huge selection of fully editable teams, real player names and kits
FOUR pitch views - Wembley, Normal, Wet and Muddy - all playable in full and half scale, horizontal and vertical
Enhanced graphics with better view of the action
Atmospheric spot sound effects - listen to that crowd roar !
Superb refined gameplay and computer controlled players
Every player has 8 carefully selected attributes
Rewind, Fast Forward, Slow-Mo savable action replays
Precise control of corners, throw-ins and free-kicks
Editable cup and league systems
Arcade challenge mode
GOAL!
A GAME BY DINO DINI
Virgin GAMES
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BE SENSIBLE, BUY THE BEST FOOTIE GAME THERE IS!
Available on Amiga and Atari ST.
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AMIGA SOFTWARE

Games marked NOP will not work on A500 Plus, A600 or A1200. Games marked NO12 will not work on the A1200.

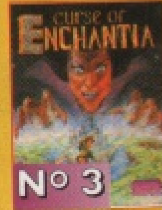
SPECIAL RESERVE TOP TEN AMIGA GAMES OF FEBRUARY/MARCH 1993



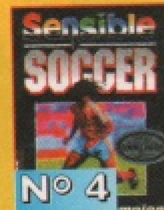
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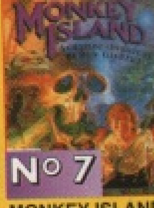
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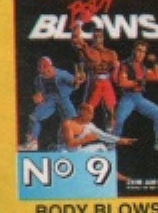
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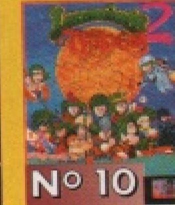
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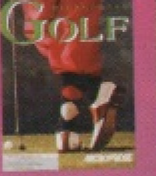


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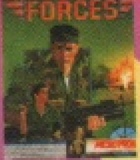

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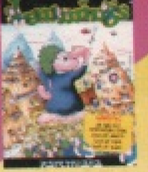


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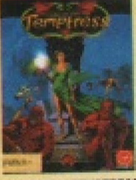


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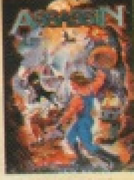
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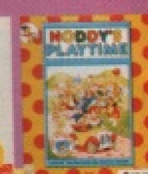


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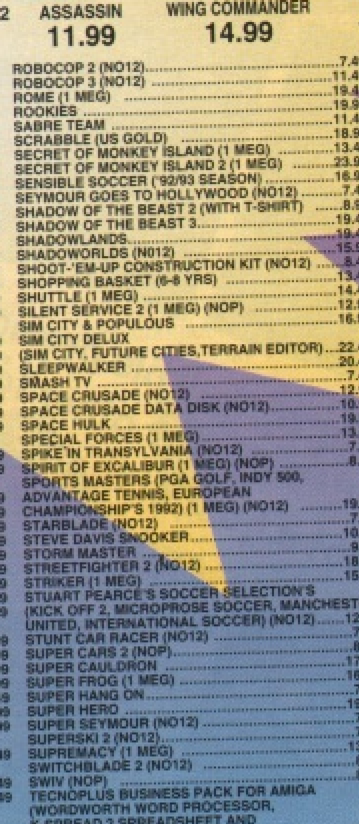
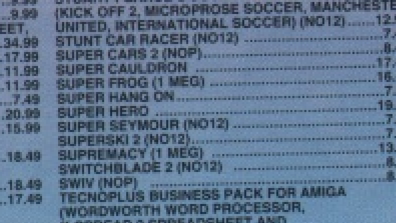




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COVERDISK 56
THE ART DEPARTMENT



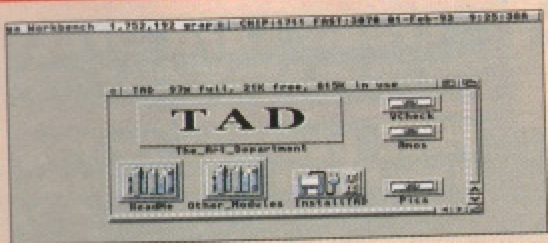
Just switch on your Amiga and insert the coverdisk. Double-clicking on the icon that appears will call up a window displaying the contents of the disk. Most of it is taken up with *The Art Department*, with two separate drawers for the AMOS files and the Virus Checker, so it's easy to find your way around!

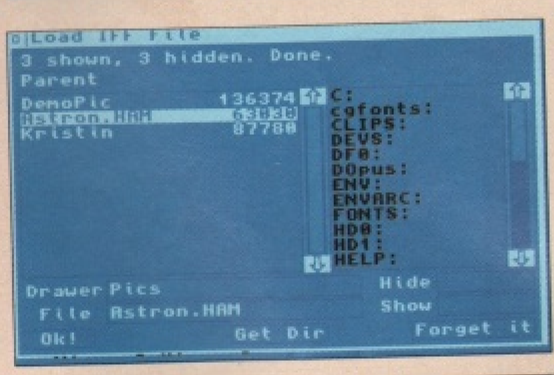
IF YOUR DISK WON'T LOAD

If your coverdisk doesn't seem to work as it should, then follow this simple guideline. Firstly, remove all unnecessary peripherals, such as printers, modems etc. Follow the instructions on these pages to the letter, and if after that you find that the disk still doesn't work, then pop it in an envelope with a covering letter explaining what the problem is to: CU DISK RETURNS, PC WISE, DOWLAIS TOP BUSINESS PARK, MERTHYR TYDFIL, MID-GLAMORGAN, CF46 2YY. Please include 28 pence per disk to cover postage and packing (55 pence for overseas readers). Your disk will be tested and a new, working one dispatched to you as soon as possible.

If your problem is a little more urgent, then call the PC Wise hotline for advice on 0685 350505. The line is open between 1030 and 1230 Monday to Friday. Please note that neither we nor PC Wise accept responsibility for any disks damaged due to negligence on the part of the user.

YOUR QUICKSTART GUIDE TO LOADING DISK 56





Firstly, switch off your computer and leave it for at least 20 seconds before switching on again. This helps prevent the spread of viruses, should any be present in the system. Then turn on and boot up from the CU coverdisk.

When Workbench appears, double-click on the disk icon (it's called TAD). A small window will appear with loads of confusing icons in it. Don't worry about any of these apart from the big one called The_Art_Department. This is the program, and double-clicking on it will cause it to load.

The Workbench will be replaced by a screen consisting of buttons. Locate the one near the top left-hand corner called 'LOAD' and click on it once. A file requestor will appear giving a catalogue of the files on the disk. Click on the down arrow until the 'Pics' directory appears, then click on it once.

A new directory will be loaded, showing the three demo files on the disk. Two of these files may require more than 1Mb to load, as they are very large. 1Mb users should select the file 'Astron.HAM' (by highlighting it with the mouse) and click in the OK! box.

After a brief wait the file will load and be displayed on screen. Click once with the mouse to return to the control panel.

Now let's try an effect. Click on the 'Colour to Gray' box. The image will then be processed, which should take about two or three seconds. To see the changes click in the 'Execute' box. The image will now be displayed in all it's mono glory.

Now try clicking on the 'Line Art' box. Again the process will take a few seconds. Display the image in the same way as before, and you will see that it's all gone horrible. Yes, well, that's what is supposed to happen. This is a very useful feature though, especially when used to prepare artwork for printing and further modification in *DPaint*.

For further details on all the effects and operations, see the main text.



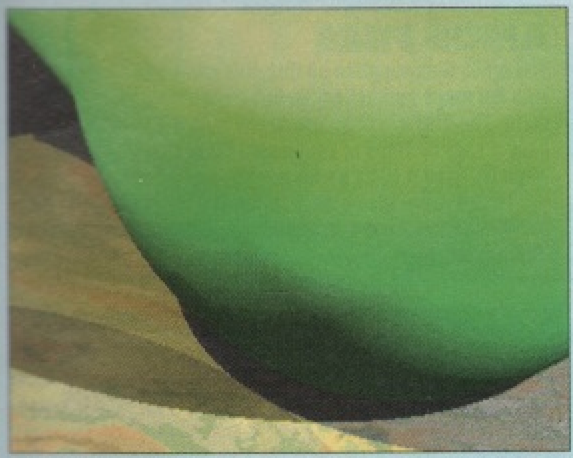
Other magazines rave about it, but only CU Amiga can convince ASDG to give it away totally free! *The Art Department*, as you have probably gathered by now, is a fully-featured 24-bit graphics manipulation program.

With *The Art Department* you can finally break into the realms of true 24-bit images. It doesn't matter if you don't have a machine to display them on, but it matters when it comes to exporting them to other machines or even just printing them out. *The Art Department* performs operations internally to a 24-bit resolution, which makes for better quality results no matter what colour depth they are finally displayed in.

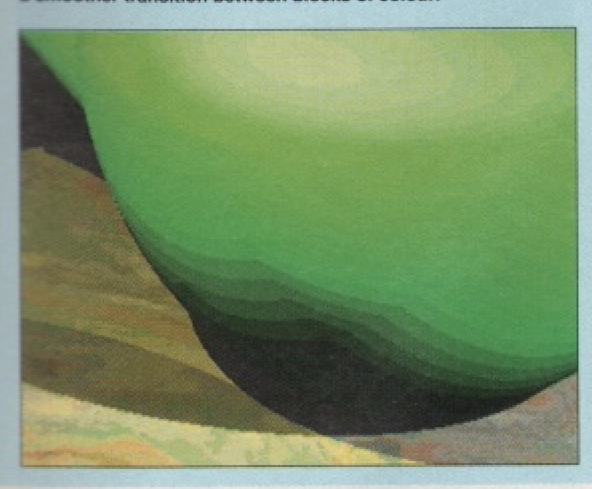
To load *The Art Department*, simply double-click on the icon and after a few seconds of disk activity, a screen like this will appear.

This is the main control panel for *The Art Department*. All of the features of this package are controlled directly from this screen, there are no menus at all.

The controls are all activated by the various 'buttons' on the screen, of which there are two types. The first type are selectors. These are used for choosing one option from the range available, and work by cycling through each possible permutation when they are activated. A good example of this is the colour button. Each time you activate it, a new colour resolution will be displayed.



Both of these pictures are exactly the same apart from one thing – the one above has been dithered in *TAD*. This provides a smoother transition between blocks of colour.



The other buttons actually perform some operation, or call up a requestor which performs some action. The operations take effect on the 24-bit data immediately, but you won't get an immediate display on the screen. To see the changes, you must click on the 'execute' button. This is because all the calculations are made on the raw 24-bit data in memory, which is only converted down to the screen display you have selected when you execute it. This may seem cumbersome, but it means that the integrity of the data is not affected if you choose to display it in 16 colours and then decide you'd rather have a HAM image.

Most standard screen modes are supported, and the software will work on AGA machines, but it will not support 256 colour or HAM8 modes. Some other display modes are supported though, including variants on the Dynamic HAM standard.

That's about all there is to it, the program is generally intuitive and easy to use, but to help you if you get stuck we have bullied ASDG into letting CU readers get a full manual at a discount price – check out the offer on page 17.

LIBRARIES AND DEVICES

Occasionally on our coverdisk, some programs make use of libraries and other system files which are not normally found on a standard Workbench disk. The result is that these utilities will run fine on the coverdisk, but not if you boot from another disk. The way around this is to copy the required libraries onto your Workbench disk.

To do this simply boot up from your normal Workbench disk and enter the CLI. Put the coverdisk in Df0: and type –

```
CD DF0:LIBS
COPY XXXXX.LIBRARY LIBS:
ENDCLI
```

where xxx is the name of the library you wish to install. In future we will tell you if a utility requires special libraries (which you may already have) so you can copy them if you wish.

This month, the virus checker and the doc. file reader make use of the Explode.library, which is to be found on the coverdisk.

1 Load Format IFF
2 Color Controls Balancing Dither: Off Palette
3 Image Controls Line Art Flip H V Color To Gray R I P
4 Scale Image Size W: 320 H: 400
Commands About Save Port Load Display Separate Exit
Screen Controls Low Res PAL/Laced Colors HAM
5 TC
6 Execute

Load Format IFF
Load Format DV21
Load Format IMPULSE
Load Format SCULPT

1 The load format can be selected by simply clicking on this button until the desired format appears. The most common format you will need to use is IFF. This loader handles most Amiga generated files, including *DPaint* pictures, Ham images, AHAM pictures and 24 bit IFF files. There is no need for any further specification. If you are in doubt about the file format, try this one first.

The DV21 loader is for 21 bit images, saved out from NewTek's DigiView. This format was only supported by Digiview3.0 and DigiView Gold. If you have a later version of this digitiser, the files produced will be recognised by the IFF loader.

The Impulse loader is for 24-bit files created, naturally enough, with Impulse and the Sculpt loader cunningly works with Sculpt image files

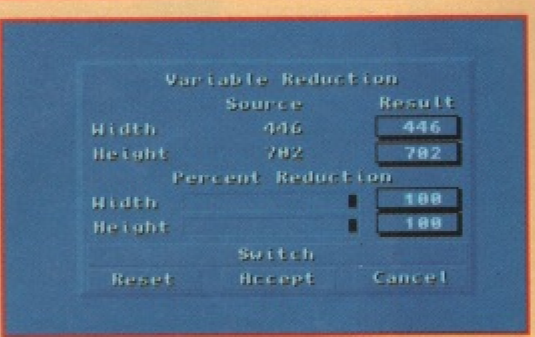
2 The colour controls are used to process an image that has been loaded into memory. Clicking on the 'Balancing' button will bring up a requestor. Sliders can be repositioned to adjust the contrast, brightness and individual colour components of the image. These changes will take effect when the image is rendered again.

Dithering can counteract the effect of having a small number of colours on the screen. Areas between solid colour values are shaded with patterns of the two colours. This is particularly effective in raytraced images to make them look more natural. The palette function lets you load, save and edit palettes, or edit them in the usual way.

3 The three effects buttons all perform image processing operations on the data in memory. The first of these, Line Art, will only work on Gray images (in however many shades). It performs a reduction algorithm that produces an outline of the image, effectively unfilling any closed off areas. The process may be repeated more than once for some weird effects.

Colour to gray is a simple effect which removes the colour information from the file. The file is then rendered as a 16-colour gray image. This can be very useful if you are planning to print out the image on a mono printer, as ASDG's controls are more reliable than your preference settings.

The RIP effect does not kill your image, but merely removes 'isolated' pixels, which can be very effective at clearing up 'noisy' images obtained through scanners etc.



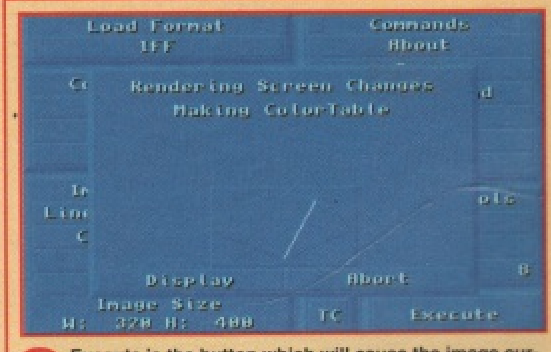
4 The scale button calls up an image scaling requestor. Slider controls can be set to indicate the percentage scale factor, or you may simply enter the numbers in the gadgets to the right.

The switch button swaps between enlarging and reducing the image, with the present and resultant size of the image displayed towards the top of the screen. You cannot set the size of the resultant image, but if the size you require lies between two percentage values, you can always perform the scaling operation more than once. As long as you err on the conservative side there should be no loss in quality of the result.

The image will not actually be scaled until it is rendered, so the operation will not be performed immediately – do not be alarmed if it seems that nothing has happened when you click on 'Accept'.

If you grow bored or decide that you don't really want to make your image three pixels wide and 640 deep, you can always select the 'cancel' option, and all of your scaling operation will be, cunningly enough, cancelled.

5 The transport controller button is for use with the Microllusions Transport Controller. If you have this, you will already know how to work this feature – if you don't, leave it alone.



6 Execute is the button which will cause the image currently in memory to be rendered. The image will appear conforming to the current image settings set in the 'screen control' panel, if they are valid. If for some reason an image cannot be rendered an extensive error message will appear, explaining the problem.

If the image is rendered larger than the screen you may scroll around it using the cursor keys. Press the mouse button to return to the control screen.

»

»

Load Format
IFF
Color Controls
Balancing
Dither: Off
Palette
Image Controls
Line Art Flip H V
Color To Gray
R I P
Scale
Image Size
W: 320 H: 400

15 Commands
About 14
13 Save
Port Load 12
11 Display
Separate 10
9 Exit
Screen Controls
8 Low Res
PAL/Laced 7
Colors HAM
TC Execute

HAM
EHB
AHAM
ARZ0
ARZ1
CUST
2
4
8
16
32

7 The colours button controls the number of colours to be used in the image. Just click on it to cycle through the options. Most options are fairly obvious, but some non-standard modes are included.

AHAM is a variation of HAM using 16 base colours instead of just 8. It enhances the quality of the image slightly, but also requires more processor time to display.

ARZ0 and ARZ1 modes are ASDG variants which allow much greater fidelity but at the cost of even more processor power. These display modes are only useful for certain types of image and may not work on some configurations of Amiga.

It is best to chose a colour resolution that best suits the image – HAM is no good if it's in hi-res mode, ARZ0 is no good if you want to use it as part of an anim.

PAL
PAL/Laced
PAL/OverScan
PAL/Laced/OScan
NTSC
NTSC/Laced
NTSC/OverScan
NTSC/Laced/OScan
Low Res
Low Res/Overscan
Hi Res
Hi Res/Overscan

8 The vertical and horizontal resolutions supported by TAD are selected by cycling these buttons. There is support for Hi res, lo res and overscan horizontal resolutions and NTSC, PAL, interlaced and overscanned vertical resolutions. Note that TAD will not allow you to display HAM images in hi-res, even though this is possible with AGA machines. Screens which are smaller than the image area may be scrolled with the cursor keys.

9 To quit the program, simply click here.

Color Separation
Type CMYK Plane CMYK
Depth Eight CMAP Color
UCR 20
GCR 60
Ink Compensation On
Magenta 31
Yellow 40
Defaults Execute Return

10 If you intend to output the image in colour, it may be worth separating it first. This can be done in a variety of different ways including both RGB and CMYK methods. You may use these separations in conjunction with a DTP package such as *Professional Page*.

Grey component replacement and undercolour removal percentages can be specified along with many other parameters.

11 Display will bring the rendered image screen back to the front. This will only work if there is a current, executed image file stored in memory.
There is really no difference in using this button and paging between the screens with the gadgets at the top of the panel. Full instructions on how to use these wonderful gadgets can be found at the bottom of this column.

12. The load button will bring up a standard file requestor. If you are unsure of its operation, check out the Quickstart guide elsewhere in these pages.
Be sure you have selected the correct loading format for the file you want before trying to open an image. If you are in doubt, try IFF first, as it handles all sorts of different image types.

13 Before loading the image can be specified as either a Portrait or a Landscape, effectively rotating the image through 90°. This can be very useful if preparing an image for printing.

Load Format Commands
IFF About
Select save file format:
Cropped Screen Image
HAM Color Image
24 Bit-Plane Data
Cancel
Image Size
W: 320 H: 400 TC Execute

15 The save requestor works in the same way as the load requestor, enabling you to save a file anywhere on any Amiga device available. Before you get to the requestor you must select the type of file you wish to save though. This is usually one of three options.

A cropped screen image is an exact replica of the rendered image as it appeared the last time you executed a display. This will crop the output file to the same size as the displayed image, so any bits which were not fully on screen will be lost.

The second selection is the image in the colour mode it was last rendered at (e.g. 16 colours). Regardless of whether the entire image was able to be displayed on a single screen, all the data will be saved.
The last option is to save the data as a 24-bit IFF. It doesn't matter if the image you loaded was HAM, since *TAD* works to a 24-bit resolution internally, it is always possible to save out a 24-bit file (although this may not be advantageous in all cases).

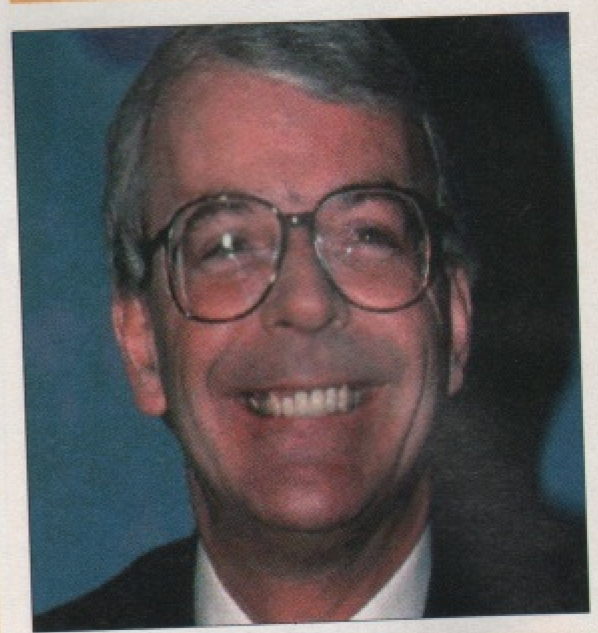
16 These gadgets can be used to flip the *TAD* screen forward or backward, the equivalent of using the Amiga-N and Amiga-M key combinations.

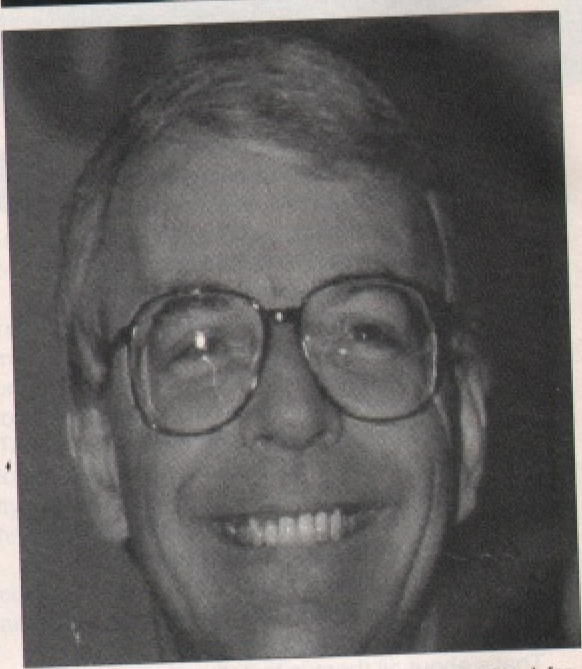
Nobody has yet come up with a satisfactory explanation why ASDG didn't just use a standard page gadget in the top right of the screen like every other utility known to mankind. If you click on the top right corner the page will flip anyway, in spite of the lack of a gadget. Maybe there is a lesson for us all there.

AMOS FILES

The Amos files supplied on this disk are provided for use with the Amos instructions in this month's special supplement. The files are of no use to you unless you already have a copy of Amos or you bought CU Amiga last month, when we gave it away on the cover.

To use these files please follow the instructions in the supplement, and remember that the pathname for them is 'Df0:Amos/'.





The Colour to Gray operator is useful for preparing artwork for printing, but can you tell which of these pictures is which?

VIRUS CHECKER

There is nothing to using the virus checker on this month's disk. Simply double-click on the 'VChecker' drawer and again on the program's icon and it will vigilantly and vigorously check any disk that you put into your drives.

This program is an update to the one we gave away on a previous disk. It can now identify more viruses and is less prone to cause trouble when running other applications.

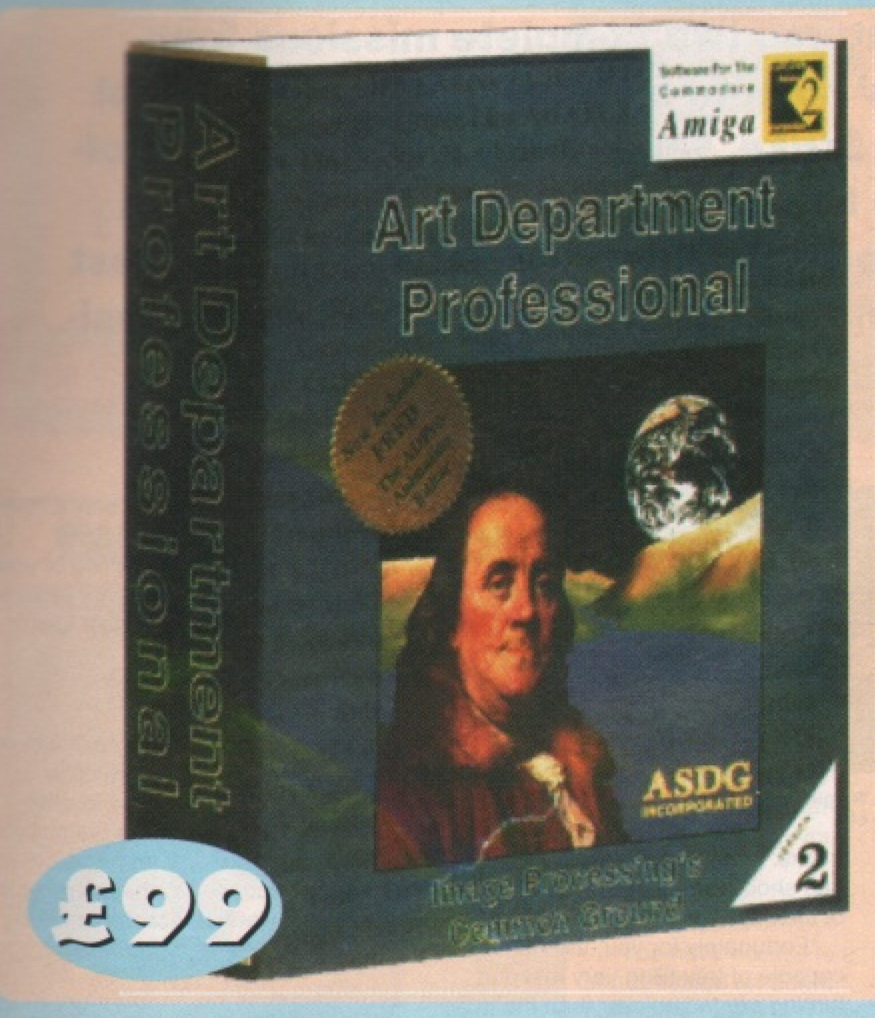
We advise you to install this on your normal Workbench disk and then run it from the startup sequence. For details on altering your startup sequence or using the WBStartup drawer, you should refer to your Workbench manual.

Once again, the Virus Checker program has not been provided with a commodities library (as this causes it to crash if run from WB1.3) so WB2.0 users will see a message complaining that this library is missing. This will not prevent the program from running, and is a problem which is easily cured by installing Virus checker on your workbench disk (which already contains the relevant library).

UPDATE YOUR COVER DISK

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Art Department Professional is the recognised product within the Amiga community for image manipulation. *Morph Plus* has been used in major film productions and it was recently demonstrated on a UK television science program. Both come with the CU Amiga seal of approval.

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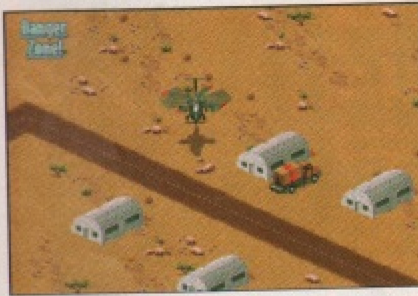
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COVERDISK 57

Get ready for some serious blasting! This month's games disk features two complete missions from Electronic Arts' soon-to-be-released strategic shoot 'em up, *Desert Strike*. Take to the skies in a state-of-the-art Apache helicopter, armed to the teeth with deadly Hydra rockets and Hellfire missiles, and blast anything that moves. What more fun could you possibly want?!

If you've always wanted to experience the thrills and spills of a modern military engagement, now's your chance! Thanks to Electronic Arts, we've got a HUGE playable demo of the brilliant strategic shoot 'em up, *Desert Strike*. Already a legend on the Megadrive, the Amiga conversion of the game is an even better blast, receiving a massive 93% and a CU Amiga Superstar when we reviewed it last month. We've got two complete missions taken from the finished game on offer, plus the option to carry on blasting once you've completed your objectives thanks to extra fuel and ammo pick-ups scattered throughout the play area.



Blowing up abandoned military buildings can often reveal surprises. Try it and see.

The game begins with a mission briefing on board a navy frigate. A US intelligence officer (bit of a contradiction there, methinks!) gives a detailed breakdown on your mission objectives and then the scene shifts to your waiting Apache helicopter nestling on the launch pad of the frigate. By wiggling the joystick from side to side, the 'copter's engines can be triggered into life and your craft will slowly rise into the air. And awaaaaay you go...


The game starts here. Wiggle your joystick to get the 'copter to take off.

Controlling a multi-million dollar helicopter isn't as difficult as you might think. The Apache flies at a constant altitude so you don't have to worry about the ground – although high-rise buildings and mountain ranges might cause you some problems.

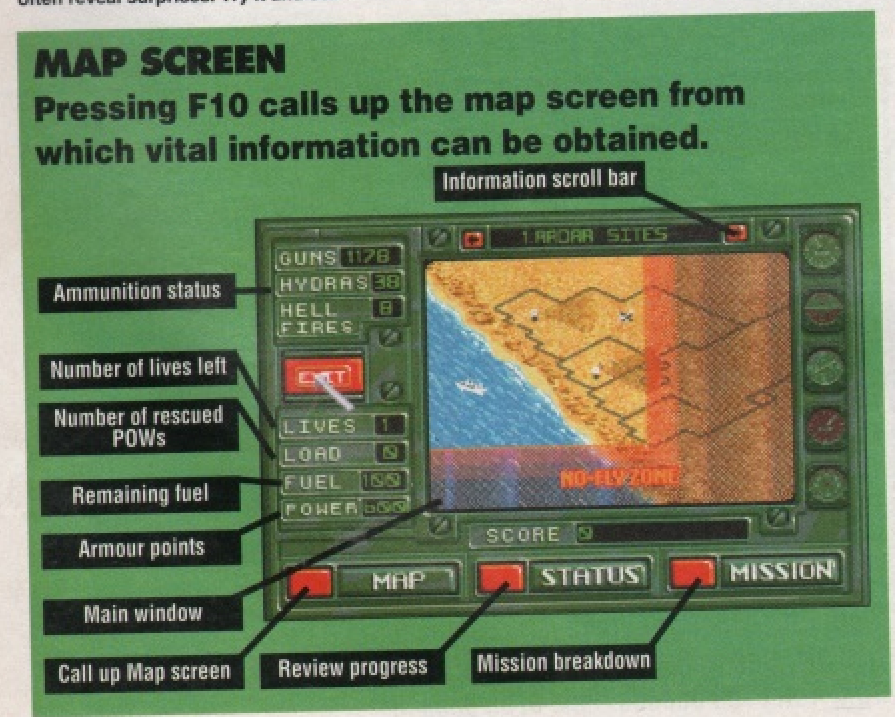
That's the good news. The bad news is that the occupying army don't agree with your campaign orders and want to stop you dead in your tracks. They'll stop at nothing to try and shoot you and your Apache out of the sky.

Fortunately for you, the Apache is capable of travelling very fast and turning around quicker than the average anti-aircraft gun – if you tell it to! Our playable demo has been configured to work with a joystick, although in the final version of the game you'll be able to choose the keyboard or mouse as well. Pushing the joystick forward pitches the Apache in that direction and pulling back on the 'stick puts the 'copter in reverse. Likewise, pulling to the left rolls the craft in that direction and pulling to the right causes the 'copter to roll right. Holding down the fire button while moving the joystick to the left or right causes the Apache to side slip in the chosen direction.

This isn't a solo mission, though, as you have the help of an experienced co-pilot – it's his job to pick up supplies and aim the weapons systems. In the final game, you'll be able to choose your co-pilot from 10 different crew members. This option has been left out in our demo, but the co-pilot you've been given is no mean shot and can be counted on to take out most targets with the minimum of fire power.

MAP SCREEN

Pressing F10 calls up the map screen from which vital information can be obtained.



ABOUT THE APACHE

The Apache helicopter is a machine dedicated to destruction. Packing state-of-the-art weaponry, the Apache is capable of performing almost any mission – but only if flown correctly. Apart from your flying capabilities, and the expertise of your co-pilot, there are three other factors that affect your performance: fuel, ammunition and armour.

FUEL

The Apache can carry a maximum of 100 units of fuel. If the helicopter runs out of fuel it is unable to drive the rotor and falls to the ground like a brick. When your fuel load is down to about 35 seconds worth, you receive an audible warning accompanied by an on-screen message. More fuel can be obtained by picking up fuel barrels. This is done by positioning the Apache directly above the fuel supplies – once this is done, the co-pilot will release a winch to hoist the fuel on board.


Apart from the missions, there are lots of other military targets to take out.

AMMUNITION

You have three weapons available to you: the chain gun, Hydra rockets and Hellfire missiles. To toggle between the three types of weapon, press the space bar. All three are aimed and fired by your co-pilot who should target the nearest enemy, so

YOUR QUICKSTART GUIDE TO LOADING DISK 57

WRITE PROTECT YOUR COVERDISK!

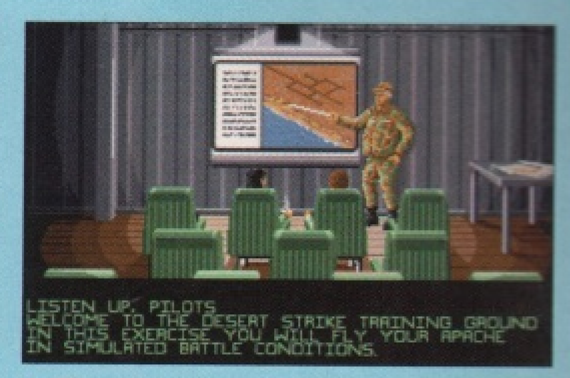
To begin with, make sure your coverdisk is write protected. To do this, open the small black tab on the corner so that you can see through the hole. This will stop you accidentally erasing or writing over data by mistake. Next, turn your machine off for a minimum of 10 seconds. This will make sure that your machine is free of any viruses. Once you've done that, stick your CU Amiga coverdisk in the drive and the game will automatically boot. What could be simpler?!



1 On booting up the disk, you'll see this screen. Nice, isn't it?!

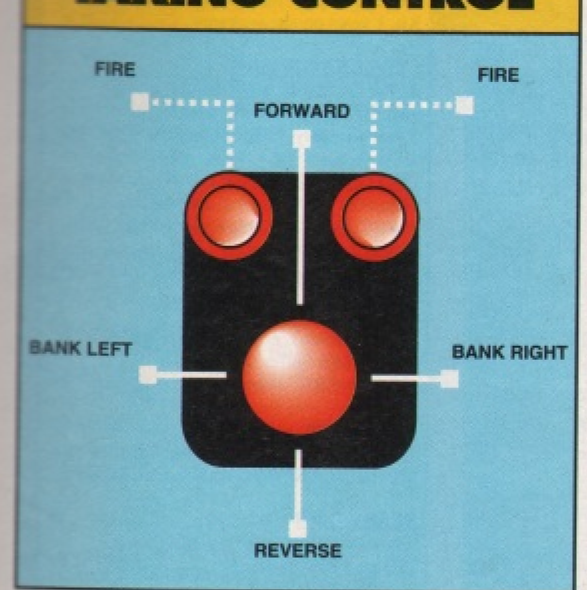


2 After a few seconds, you'll see this. Everything's working fine, so you can relax and limber up for some serious blasting.



3 And voilà! The game proper kicks in and you receive a briefing before the action begins. What could be simpler...

TAKING CONTROL



all you have to do is punch the fire button. Having a good hit rate depends on the skill of the co-pilot.

The chain gun fires a continuous stream of bullets at a target but is not particularly powerful. You'll find yourself hanging around all day trying to destroy some of the game's larger targets. Hydras are unguided rockets that explode on impact with hard surfaces. They follow a straight line from the Apache until they meet the ground or a target. Hellfires are laser-guided missiles that, once released, follow a route to the nearest target. Because of their destructive capability they are best used against heavily armoured enemies. Replacement missiles can be obtained by picking up ammo crates. Again, merely position your 'copter over the supplies and your co-pilot will do the rest.

POWER

The Apache is protected from bullets, shells and missiles by a layer of armour which is measured in power units. The maximum amount of power is 600 units. As the helicopter is hit, this number goes down. When the armour surrounding the Apache becomes so thin as to be life-threatening, you receive an audible warning followed by an on-screen message. You can obtain replacement power points when you drop MIAs at the Landing Zone or by picking up cases of armour.

You have access to a sophisticated on-board computer, called into action by pressing F10 (pressing the fire button returns you to the action). You can get information on any mission target and check the location of resupplies and any enemy gun emplacements.

MAP SCREEN

The map shows the region you're flying in. The Apache is a spinning white cross. Cycle through the targets and items by clicking on the cycle arrows.

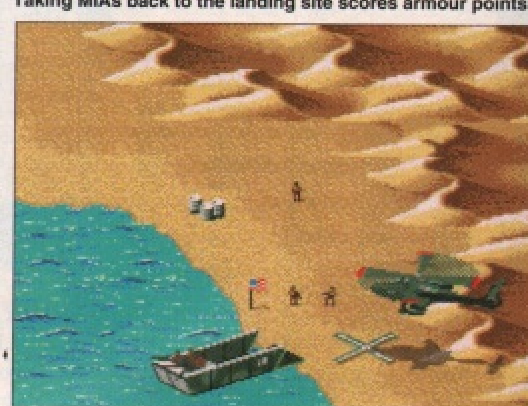
STATUS SCREEN

This gives a report on your progress in the campaign. Each target has either Active or Destroyed next to it. If it's Active, you must destroy it to finish the campaign.

MISSION SCREEN

Every target and object on the map has a file in the mission log. The file displayed at the mission log screen corresponds to the target or object in the text box. To view information on another subject, click on the arrows. Each mission has definite parameters. Use the mission log to discover what has to be done.

Taking MIAs back to the landing site scores armour points.



YOUR MISSION, SHOULD YOU CHOOSE TO ACCEPT IT...

In all, there are two missions to complete. Each has its own particular dangers, but to make things even more difficult, you've only got one life for both missions.

MISSION ONE

Put in the cockpit of a fully-armed Apache helicopter gunship, your ultimate objective is to prevent crazed dictator, General Kilbaba, from developing a nuclear bomb and holding the West to ransom. In our special demo, this involves establishing Allied air superiority, so that future missions can take place in relative safety from ground attack. To do this, it's important to knock out the two radar sites which are highlighted on the map screen. Each site is guarded by a couple of AAA batteries as well as a number of ground troops. Be careful not to get caught in enemy crossfire and keep an eye out for mobile rocket launchers.



MISSION TWO



Once you've taken out the two radar sites, call up the map screen and pinpoint the airfield. Check on your fuel and armour situation and, if needs be, make a sortie to pick up fresh supplies. Next, make a note of enemy gun emplacements so that you don't fly in blind and end up getting shot to pieces. The airfield is very heavily defended, so it's best to sneak up on the AAA and Rapier batteries and destroy them before they can turn around and return fire. Never hesitate to retreat – you've only got the one chopper, so turning tail and legging it out of the danger zone is sometimes the sensible option. If you take several hits and find your armour dangerously low, fly to the Landing Site and drop off any MIAs. This action will restore part or all of your armour points and you can return to finish the job. If possible, make sure you always have an MIA on board, as they act as an insurance policy should you be on the receiving end of a heavy bombardment.

All the planes and buildings have to be destroyed before the airfield is considered destroyed. If in doubt, check the map. If the icon still appears on the map, then at least one object critical to the airfield remains intact.

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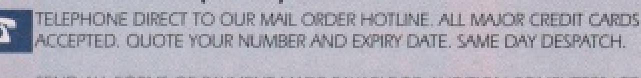
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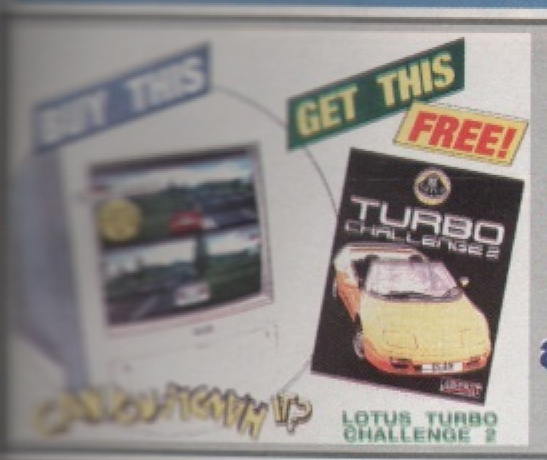
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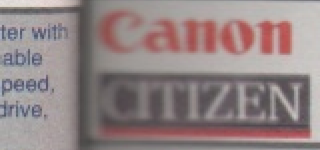
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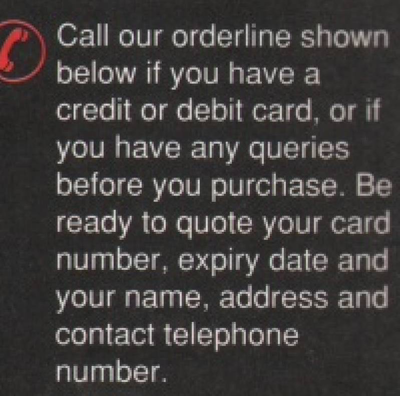
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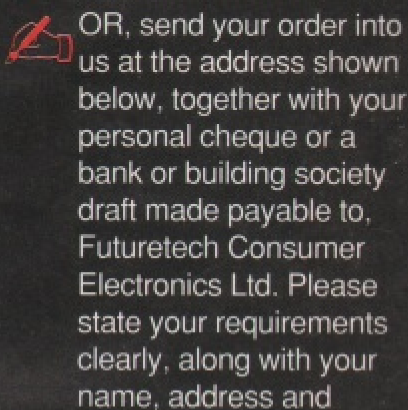
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Right: The long wait is over, the A2000 replacement is here at last. But how does it shape up against the competition?

The home computer market is hotting up with new releases and price reductions. So it has come to pass that CU have conducted their own consumer research, finding out what all the myriad number of machines have to offer. Now read on...

Which COMPUTER?

It is easy to get so tied up in your own machine that you don't notice what is going on around it in the marketplace. New developments which may dramatically affect your machine are taking place every day.

We thought it might be useful to present a comparison of the machines aimed at the home market and see how they performed against each other in key areas. This report is as unbiased as it could possibly be and all the results and judgements are based on the combined knowledge of individuals who have spent years in the marketplace.

We will start off then with the latest arrival, the A4000/030 machine just released by Commodore in the U.K. as a replacement machine for the A2000. We will also be hearing from other one-stop entertainment/leisure machines such as the new Atari Falcon and the educationalists favourite, the Acorn A3010, as well as seeing how the big boys, Apple and IBM, fare.

We will be judging the machines on all aspects of performance, not just the technical excellence of its circuitry. To succeed as a home computer, a machine has to be capable of further expansion and must have the support of a large number of third party manufacturers, to provide the scope and choice of peripherals and software necessary. The ideal home computer should also be easy to use and yet at the same time allow the user access to customise and change every part of his working environment. Instead of just looking at tables and graphs we will be assessing each machine as a complete solution, which will include the software and hardware which can be added to the basic system. The result is, we hope, the most useful guide to the modern home computer possible.

Well then, get out your banners and flags to cheer on the Amigas, put the half-time hotdogs under the grill and get cracking on the grand home computer face off.

Amiga A4000/030



So the long wait is over, and finally a replacement for the A2000 steps forward. There has been speculation, suspicion, and nervous murmurings about how such a launch would be managed, how much would be sacrificed for a pleasing price point and whether the new machine could generate enough support from third party manufacturers to make it worthwhile.

In the end it was, as everyone had expected, an '030 version of the Amiga 4000, henceforth to be known as the A4000/030, which rather mucks up our score boxes. The A4000 junior is exactly the same as the the much loved A4000/040, launched in October, with the single exception of the processor board. As you may remember from our exclusive review of the A4000, the new Amiga boxes have a processor slot into which the main processor card is placed. Simply then, the A4000/030 is the A4000 as was with a slightly less powerful processor card.

There are two major advantages to this. Firstly, for Commodore (and indirectly for us) this is a cheaper way to manufacture machines. The boxes are churned out and the cards are added later. This means that CBM can almost instantaneously switch production from one type of machine to another. There is an economy of scale involved too, resulting in reduced costs for raw components, packaging and so on. The result, a cheaper machine to manufacture.

The other main advantage, which is a bonus for us rather than them, is that the A4000/030 is completely hardware compatible with its big brother. That means no compatibility problems. It also makes the upgrade path a lot easier. All that would be required to gain the full power of the 4000/040 would be to whip out the '030 card and replace it. It probably won't be long before some suppliers begin operating a 'swap-shop' service for upgraders.

SO WHAT DOES IT HAVE?

The main features of the A4000/030 are the same as the '040 version, the only difference being speed. The new machine has all the custom ships associated with the AGA chipset, giving it all the new screen modes, including super high resolution modes, and an extended colour palette. This allows up to 256 colours in any screen mode, yet still supports the old HAM mode (which can now operate on a high-res screen).

It also sports an IDE controller interface with an installed IDE hard disk. There is still no SCSI option available, but you can always buy a controller card to fit in one of the four Zorro III expansion ports.

The machine comes with an installed version of Workbench 3 (all six disks of it), exactly the same as the A1200 HD. There are a few updates to the Workbench, but most of them deal with support for the AGA chipset and a few tweaks here and there.

PROS:
- Nice Box
- AGA chipset
- Advanced multitasking OS
- Cheap upgrades
- Cheaper than A3000!

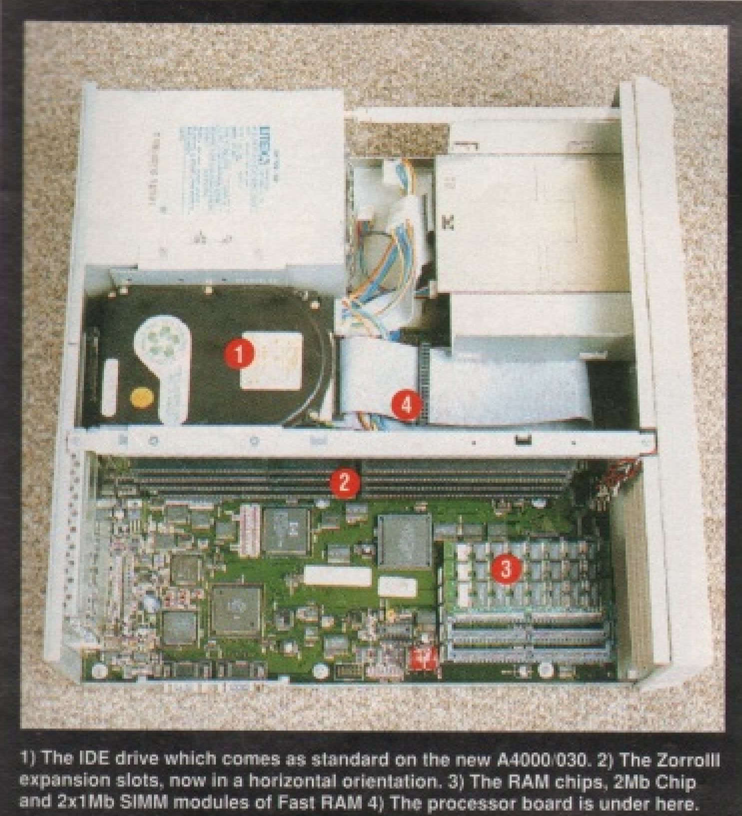
CONS:
- No DSP
- No MIDI ports
- No SCSI port
- Clumsy Workbench

PRICE/POWER

Coming in a handful of small change below the psychologically big £1000, the A4000/030 lines up quite impressively against the likes of the Falcon. For a start the '030 on this baby runs at 25MHz, not the shabby 16MHz of the Falcon. Although we haven't had time to put it through rigorous tests ourselves yet, it comes in at around twice the speed of the Falcon.

USER INTERFACE

Workbench 3 is included with the new machine. It's just as well that there is a hard drive to put it on, because the six disks are fairly unwieldy. Perhaps it is time that Commodore had a think about making a bigger ROM. The rest of the interface is as we all remember it, with a few extended preferences to take advantage of the new AGA screen modes. Nothing new really.



1) The IDE drive which comes as standard on the new A4000/030. 2) The ZorroIII expansion slots, now in a horizontal orientation. 3) The RAM chips, 2Mb Chip and 2x1Mb SIMM modules of Fast RAM 4) The processor board is under here.

SOFTWARE

It remains to be seen how compatible in terms of software this new machine will be. It should run everything that will run on the A4000/040, and probably a few more things. The software which directly supports the AGA hardware is rare at the moment. The only major packages that handle the new screen modes are *ADPro*, *Personal Paint* and *DPaint IV AGA*.

EXPANDABILITY

Four ZorroIII slots (which are the multiplexed version of the old ZorroII slot) provide enough room for a SCSI card, a graphics card and a modem. What more do you need?

There is no shortage of cards for the Amiga that do everything from add a tape streamer to driving Computer Numeric Control milling machines. It would be hard to come up with any hardware device which cannot be connected to the Amiga at all (although you may have to write your own driver software).

WHY NOW?

Some people may be wondering why it is that, since there is no new technology on the A4000/030, it was not released before now... before the '040 version perhaps.

Well, there are a number of reasons for this. Historically Commodore have never been very good at sitting on new technology – they like it to be out earning money as soon as possible. Since the limiting factor in the design span of the machine was more than likely the main board, the one with all the custom chips, and not the processor board, it is very likely that when it was finally ready for launch either version could have been chosen – it wouldn't have been quicker to release an '030 version.

A joint launch would have been a bit on the brave side. It is hard enough convincing people that they need one of your new machines without complicating the issue with lots of different models. At the time the A1200 was due to be launched too. Another mid-range machine would have been too confusing, especially in the pre-Christmas money making period.

Another factor may have been the desire to make sure the product was right and went out at the right price. To fill the shoes of the A2000 is a tall order. The A3000 sales were insignificant compared to those of the A2000, the machine traditionally used by professionals and the more dedicated enthusiast. With the market now in quite a period of flux, mostly due to the falling prices of PCs and Macs these decisions require a lot of contemplation.

Cynics may claim that Commodore just wanted to clean up with the higher priced machines before introducing a cheaper alternative – but here at CU Towers we're not cynics, we prefer the term 'realists'.

CONCLUSION

The A4000/030 is a worthy sucessor to the A2000. In real terms the price of the 'boxies' has come down considerably since 1987. The processing power and the graphics ability of the 4000/030 really show up other '030 machines.

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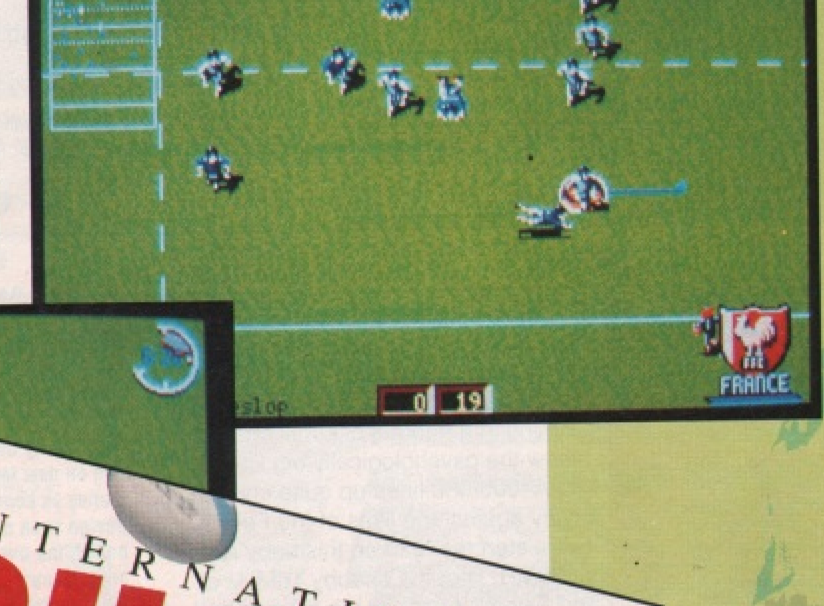
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Acorn A3010





The Acorn A3010. Having conquered the education market, Acorn now want to take over the family market too.

The A3010 is not an Amiga, in spite of the nomenclature. Acorn's propensity to label their Archimedes with 'A' at the beginning has caused a bit of trouble in the past, especially with the A3000. But the machines themselves could hardly be more dissimilar in their approach.

There are two major differences separating Acorn's A3010 from the rest of the machines we are looking at here. The first and most important of these is the processor.

PRICE/POWER

Instead of subscribing either to the Intel or Motorola camps, Acorn have designed their own processor. More than that, they have designed a different kind of processor. The ARM2 processor is what is known as a RISC Chip (Reduced Instruction Set Computer), which has rather a lot of advantages over conventional processors. Essentially it comes down to a trade off between speed and operational complexity. Acorn's design forsakes the higher level functions such as MUL (the 16-bit multiplication operation) for a more efficient execution cycle, with all instructions taking one cycle to perform.

This may at first seem like a retrograde step, but it actually applies modern semi-conductor design to a simpler set of instructions as may have been used in the early 80s. The result is a chip which executes intructions a great deal faster than you would expect. The ARM2 clocks in at around 8 MIPS, compared to around 7.5 MIPs of an A1200 running a 68030 processor. The added advantage is that the ARM chip is cheaper to manufacture than the '030.

Already major manufacturers such as Apple and IBM have become interested in RISC architecture. Acorn could make a tidy living from just licensing production, but they have a commitment to the education market.

The second factor which sets the A3010 miles apart from the other machines under review is the ROM.

USER INTERFACE

Unlike most personal computers, no part of the system software comes on disk, it is all contained in a 2Mb ROM. This not only includes all the software for the Archimedes WIMP system, but also all the printer drivers, fonts and libraries that Amiga users seem to be forever shuffling between floppies.

This results in a machine which you can use without having to resort to the disk drive. A host of simple applications are also supplied on ROM, including a word processor and paint package. This means that a file format standard is set not by convention, but by a compatibility necessity, forcing software houses to support the packages bundled in the ROM. The RISC OS3 operating system does multitask, allowing many applications to be active. Memory allocations can be altered by calling up the task management window, which allows memory resources to be assigned at the click of a button. Due to font and library access in ROM, a larger amount of the System's RAM is available for applications.

PROS:
- Relatively cheap
- Unbeaten on performance/price ratio
- Excellent educational software
- Reasonable sound
- Good user interface
- Flexible video modes

CONS:
- Small software base
- Not very expandable
- Expensive Hard Drive options
- User Interface not customisable

SOFTWARE SUPPORT

There is more software than you might think available for the Archimedes. Okay, a disproportionate amount of it is educational software or, that dreaded word, edutainment, but there are also accounts packages, DTP systems, databases, multimedia applications. Acorn themselves produce a catalogue of currently available hardware and software – a 170-page A4 directory covering every product known to them.

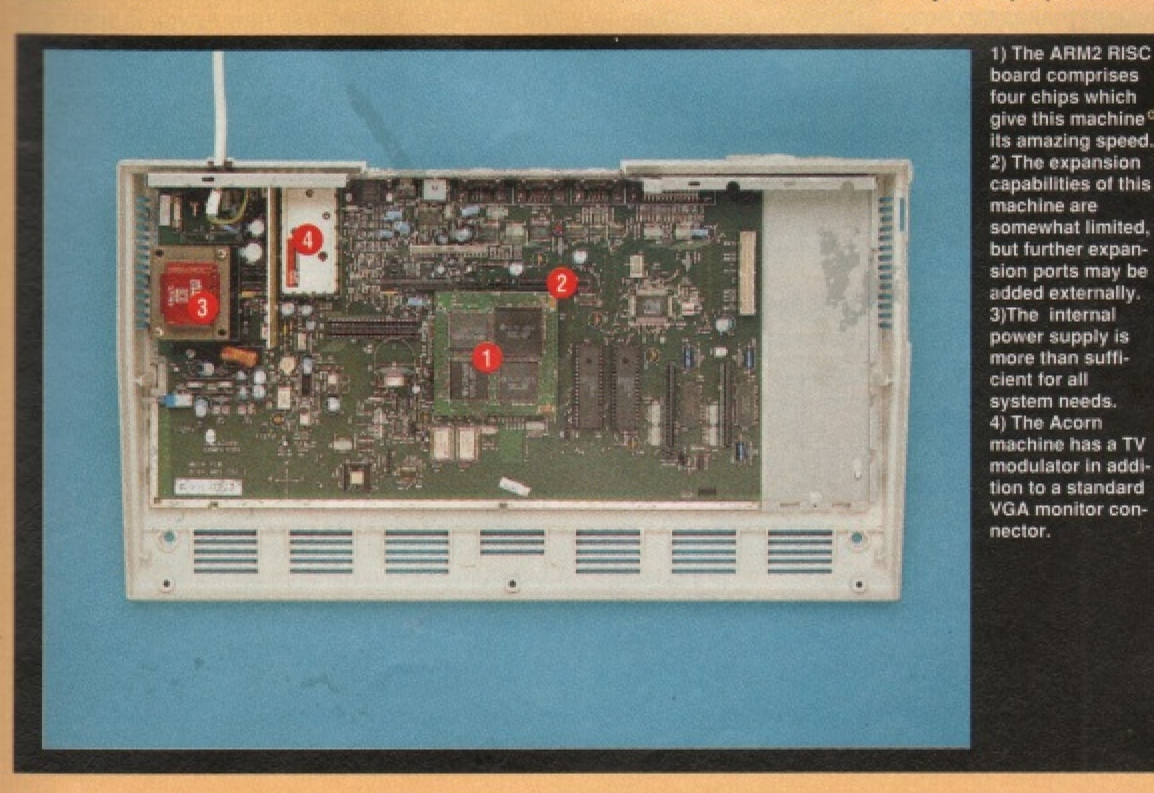
The games scene on the Archimedes is fairly slim, although this may change as Krisalis, better known for their Amiga titles, are undertaking the task of doing Archi conversions. Titles such as Lotus may be only the tip of the iceberg.

EXPANDABILITY

Only the higher models of the Acorn series, those aimed at business user or school fileservers, include a SCSI interface, but all models do have an expansion port.

Many familiar expansions are available – scanners, SCSI ports, MIDI adaptors, sound samplers and even genlocks. The price comparisons vary against their Amiga counterparts. MIDI interfaces are around £70, genlocks around £250, but a SCSI adaptor is only £99.

There is a more or less equal range of devices available, but there is perhaps not the same amount of choice – width not depth in the Archimedes market.



1) The ARM2 RISC board comprises four chips which give this machine its amazing speed. 2) The expansion capabilities of this machine are somewhat limited, but further expansion ports may be added externally. 3)The internal power supply is more than sufficient for all system needs. 4) The Acorn machine has a TV modulator in addition to a standard VGA monitor connector.

CONCLUSION

A fast and impressively capable machine, but somewhat lacking in support. Acorn do a very good marketing job with their machine and support their users well, something which perhaps should be taken on board by companies more usually mentioned in this magazine.

For education this machine is the only serious choice, but until more interest is shown by third party companies in developing more software and hardware it is not going to be as well supported as the majority of users like their platforms to be. An excellent choice for those wishing to study at home though.

Price: £499 Contact: Acorn Computers, 0223 254254

»

Amiga A1200

The A1200 is quite a powerful machine, but does its lack of expansion capability severely threaten its chances?

The Commodore Amiga A1200 sneaked into shops with hardly a whisper, and yet it seems destined to be the top selling home computer for years to come. Although it may seem to be nothing more adventurous than an A600 suffering the addition of a numeric keypad, technically it's a great leap forward for the Amiga.

Fears that the all-singing, all-dancing AGA chipset was going to be limited to the more high end A4000 series were proved unfounded, as the A1200 offers the next generation features and a reasonably fast CPU at a bargain price.

PRICE/POWER

Looking solely at the Amiga's CPU can sometimes give a false impression of what is going on under that white plastic exterior. For example, although the A1200 sports a 14MHz 68020, the custom chips which govern the video and sound capabilities help boost the overall performance considerably. As a result the A1200 compares very favourably with similarly priced 80286 and 80386 based PCs.

Graphically, the A1200 is streets ahead of PCs as it offers video modes which can provide more colours and more detail – without resorting to any form of extra video card. The new AGA chipset offers modes as high as 256 colours from a 16 million colour palette (like SVGA) but also provide a special HAM8 mode which offers pseudo-18 bit colour.

Furthermore, the A1200 can operate directly with a television set or video recorder. To do this on most other computers requires costly extra hardware.

Although most fans were disappointed that the new range made no improvements to the audio capabilities – four channels of 8 bit PCM sound – the Amiga can still outplay most add-on cards for the PC.

Furthermore, Commodore are known to be looking to make a DSP available for the Amiga, and although it is not certain whether the A1200 will benefit, the future is looking bright.

PROS:
- Very cheap, especially beside a PC.
- Excellent video modes with no extra hardware.
- Good sound.
- Superb user interface.
- Easy to expand: hard drives, memory and fast processors readily available.

CONS:
- Only one trapdoor expansion slot.
- Labelled as a 'games machine' despite excellent capabilities.
- CPU not exactly state-of-the-art.
- Only machine here without a High Density floppy drive
- If more than simple expansion is planned, the A4000/30 is a better buy.

USER INTERFACE

While other systems have struggled with command line interfaces, the Amiga has always had the Workbench as an integral part of its make up. Over the years it has grown from a tacky looking orange and blue lumbering beast into a very svelte grey and blue masterpiece of 3D bevel-look design.

Probably the only mass-market operating system which truly multi-tasks, the Workbench is an amazing piece of software. All Amiga application packages take advantage of this platform to provide an easy to use, infinitely adjustable and very stable user interface. Advanced features include the interprocess language ARexx, which can link several multitasking programs together.

Later versions will include 'retargetable graphics' to provide seamless support for high performance video cards.

SOFTWARE SUPPORT

Because of the way it has been marketed in this country, the Amiga is seen first and foremost as a games machine – and this means there is a huge range of high-quality leisure titles available. The Amiga's hardware can handle fast graphics and digitised sound with ease, although it is fair to say that the best has yet to come when A1200/A4000-only titles start to appear.

Business software is not quite so common, although the number of word processing and desktop publishing packages are well into double figures. The better DTP packages offer all the facilities of their non-Amiga counterparts, with the added advantage of running on Workbench.

Video and graphics support is of a very high standard, with many professional quality image rendering, processing and animation packages available. The Amiga probably handles Presentation graphics better than any other computer can.

There are an increasing number of music sequencing programs – as well as 8 and 16 bit sound sampling packages – starting to appear, which when combined with the excellent video support makes the Amiga 1200 the most accessible multimedia machine yet.

EXPANDABILITY

Due to the incredible popularity of the A500, there are many Amiga peripherals designed to interface directly with the serial, parallel and video ports of the A1200 – including MIDI interfaces, hand scanners, digitisers and genlocks.

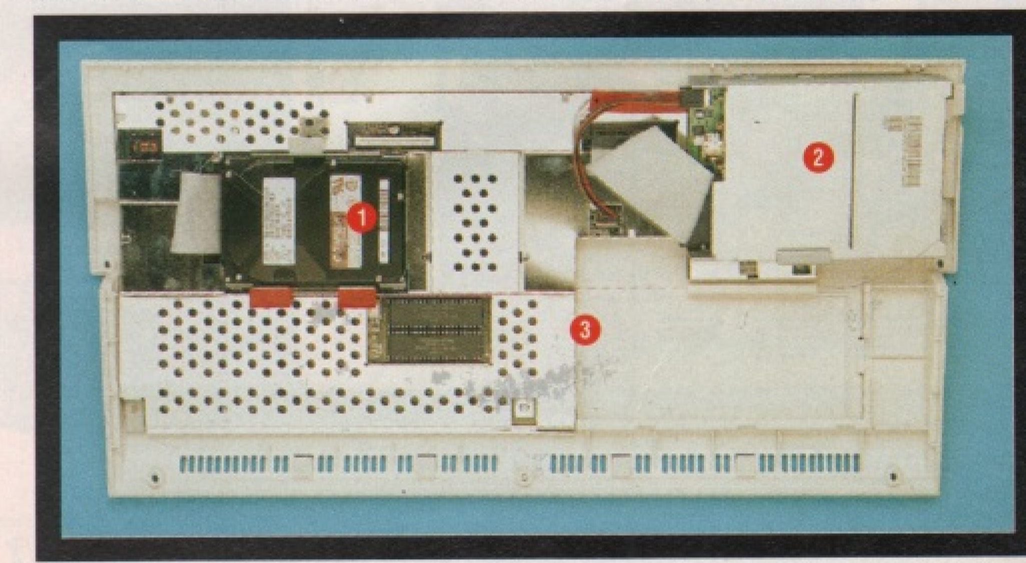
The A1200 also sports a PCMCIA slot, and although at the moment peripherals are limited to 2Mb or 4Mb RAM expansions, more are promised. As PCMCIA is a cross-platform standard, cards developed for other machines should work without modification. Underneath the A1200 a 'trap door' is present which can be used to add more exotic hardware. At the time of writing, a memory/co-processor board and a 68030 accelerator card are available, with a SCSI interface imminent.

An IDE hard drive can be connected directly to the Amiga, and other internal connections offer the prospect of yet more memory expansion. Indi Direct can supply machines with pre-installed hard disks without invalidating the WANG warranty.

CONCLUSION

With the AGA chipset, this new Amiga is said by many to be destined to become the Commodore 64 of the 90s. Building on the large amount of Amiga software already available, superb video games will only scratch the surface of its potential.

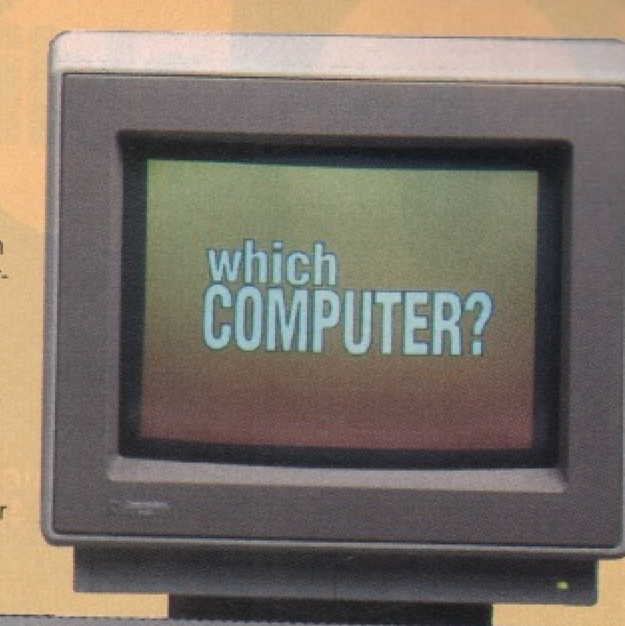
Price: £399 Contact: Indi Direct 0543 419999



1) The IDE hard drives can now be fitted without invalidating your warranty.
2) Unfortunately the A1200 comes with a nasty 880k disk drive instead of the High density model that all of the other machines shown here are using.
3) The trapdoor is very nice, but there is only one of them.



Atari Falcon



The Atari Falcon was supposed to take the market by storm, but Atari's lack of cash have prevented big marketing spends.



The '030 Falcon is now the flagship of the ST range, but is it a question of too little too late? As with the STE, it seems that Atari have taken a long time to catch up with the rest in terms of hardware performance. The Falcon is the first machine in the ST range to use the Motorola 68030 chip as standard, arriving even as Commodore launched the A4000 with its much faster processor.

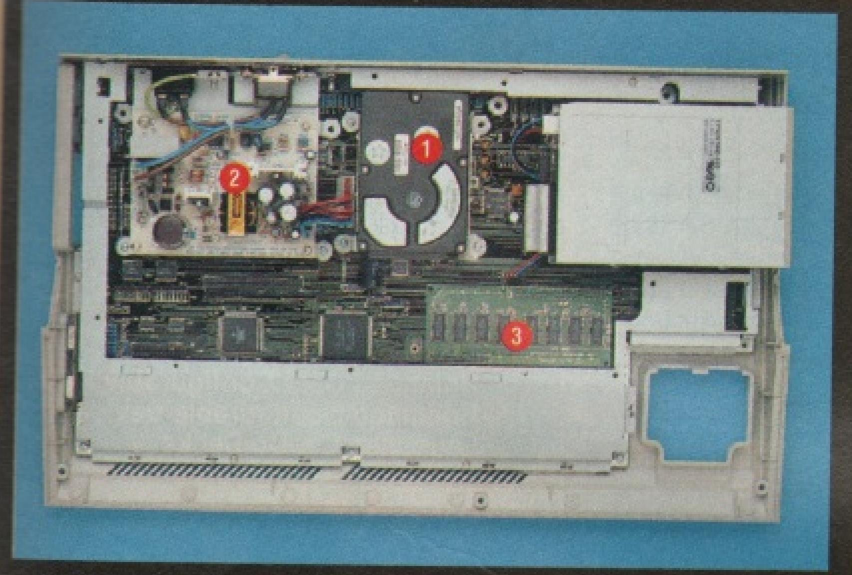
There will probably be some third party accelerators in the near future, but it isn't exactly the white heat of technology.

The thing most people are concerned with is the DSP chip though – at present the Falcon is the only home computer to include such a device.

PRICE/PERFORMANCE

Price is where the Atari suffers badly. It appears overpriced in a market where all it has to offer is a crippled 68030. The full benefit of the processor is not realised because the memory is organised in 16-bit packages.

The '030 is only a 16MHz variant, with a performance claimed at 3.84 MIPs. This does not compare exceptionally well with the 2.1 MIPs of the A1200. A decent '030 processor should be turning in around 7 MIPs. The gap between the Falcon's performance and the A1200 could be even narrower, considering the latter's 32-bit redesigned custom DMA chips.



1) Atari have sensibly opted for a SCSI hard-drive interface, which can also accept many other devices. 2) The power supply may look a bit rough and ready – but it works. 3) The standard Falcon comes with only 1Mb of memory – not enough to make proper use of the multitasking capabilities of the machine or the DSP chip.

The Falcon will support an additional 68881/2 FPU, but again this will be clocked at 16MHz, a very pedestrian speed, especially since the co-pro boards for the A1200 are already running at 50MHz.

The only thing really going for the Falcon is the DSP chip. The DSP is a Digital Signal Processor, which is capable of 16 MIPs of operation at a speed of 32MHz. The DSP will be initially used for high quality audio work, but can also help with video and high speed communications. It will be interesting to see what the third party manufacturers make of it.

Unfortunately for the music ambitions of the machine, at £999 for the 4Mb version (which is the minimum needed to use the DSP properly) it is already more expensive than many dedicated samplers and effects boxes.

USER INTERFACE

The Falcon still struggles on with TOS. This is the Multitasking version of TOS, cunningly called MultiDos, which provides similar features to AmigaDOS, though without any equivalent of ARexx. It is a significant advance over the old TOS, and in many respects is more powerful than either Windows on the IBM PC or System 7.0 on the Apple machines, but still sticks to the quirky old TOS principles. Task switching is not as easy as on the Amiga and task priorities are decided by MultiDos alone.

The screen mode goes up to Super VGA standard – 640 x 480 in 256 colours. This is obviously less than the Amigas are capable of, but is of the same standard attained by the other machines under test.

SOFTWARE SUPPORT

Although there is plenty of ST software available which, at this early stage, seems to be entirely compatible with this new machine, there is yet to be any significant packages released which will take advantage of the new capabilities of the Falcon. It seems that the Falcon will attain a much better backward compatibility rate than the Amiga did when the A500+ was launched (and the A1200 and the A4000).

PROS:
- DSP chip
- True Multitasking
- Reasonable expandable
- SCSI as standard
- MIDI as standard

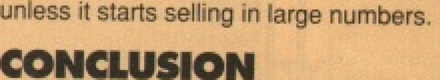
CONS:
- Limited to 256 colours
- 16-bit RAM
- Slow processor clock speed
- It's an Atari
- Poor configuration options
- Memory upgrade limited

EXPANDABILITY

With a SCSI port as standard there is no problem in adding external storage devices such as hard drives and tape streamers. The back of the Falcon also sports a MIDI port (as did all previous STs) and a LocalTalk compatible LAN port. There is no doubt that the Falcon is well connected when it comes to expansion.

There is even a special DSP port, which allows the DSP direct access to the outside world. One of the possible future expansions for this port would be a high speed modem. As most of the modem function would be handled by the DSP, such a unit would be relatively cheap. A fax device would be almost just as easy.

The Falcon will have the same standard of hardware support as the ST did, but with some of the less committed ST suppliers having moved out of Atari peripherals, it seems unlikely that they will tool up again just to support this new machine unless it starts selling in large numbers.



CONCLUSION

The Falcon is certainly a nice machine. It is the only home computer with a DSP chip as standard which could win it a large number of friends in the music business. It does have its share of disadvantages too.

The first of these is the price. Its performance doesn't match up to the other contenders in the price range, even if it does have the DSP. It is rather silly to sell the machine in a 1Mb configuration. In this amount of memory it is impossible to multitask effectively or make any significant use of the DSP – the only two reasons for many Atari owners to upgrade.

It may prove to be a useful tool for musicians and it does have a rather large software library to build on which may tempt existing ST owners to upgrade.

Perhaps the real testing ground for the Falcon will be in the DSP upgrade market. If software and peripherals can be manufactured quickly and cheaply enough a new wave of Ataris may appear in music studios up and down the country.

The tremendous advantage of the DSP chip could be undermined if Commodore manage to get their act together and produce a DSP card for the A4000s (although this would obviously suffer the same price problems when competing against music studio equipment).

In the end the Falcon is not a complete solution, you would need more than the basic model to be able to achieve anything useful (rather as the A1200 really needs a hard drive if you want to do anything but play games), so the pricepoint is a little misleading.

Price: £599/£999 4Mb Contact: Silica, 081 309 1111

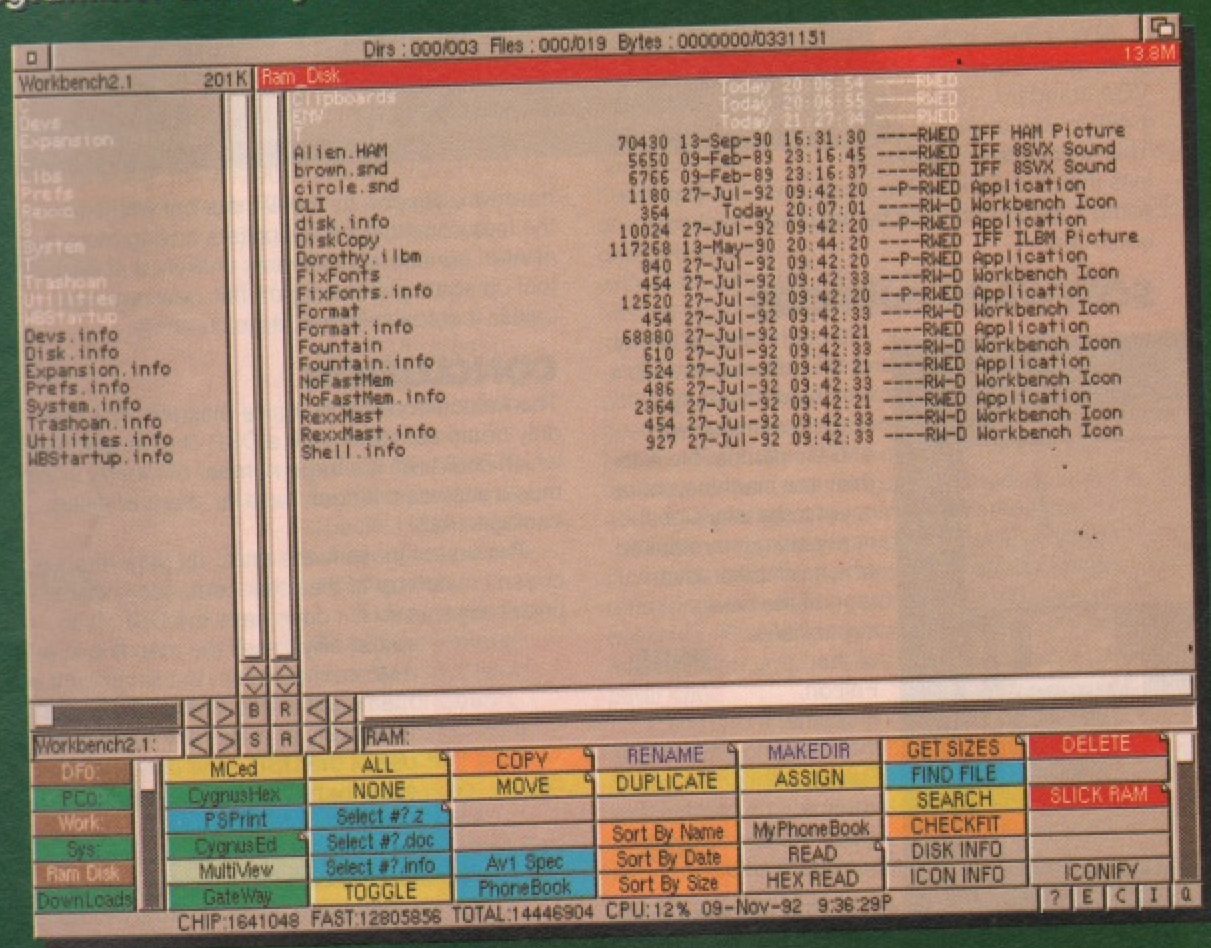
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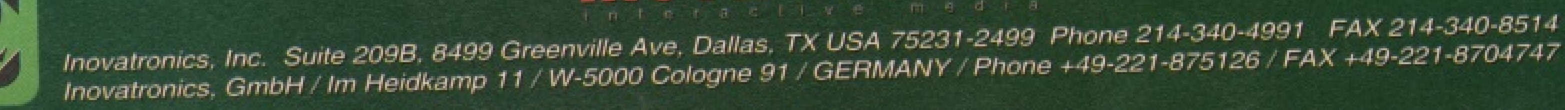
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IBM PC compatible computers

IBM compatible machines have dominated the business world for years and now with prices falling daily they are threatening to invade our homes as well.

For years the IBM compatible Personal Computer (or PC) has been confined to huge cluncky boxes and running word processors and spreadsheets. Recently this has started to change, with more and more home users buying PCs, tempted by the dramatic plummet in prices. So far this year, more than 300,000 PCs have been sold.

Hundreds of manufacturers produce PCs and peripherals, with even Commodore starting to get very good at it. All PCs use CPUs developed by Intel (or a compatible chip from a competitor) and the most common are the 80286, the 80386 and the 80486. With the drop in prices and ever-increasing need for more processor power, no-one buys a 286 these days, and no-one with sense buys a 386 either.

PROS:
- Quite cheap considering a monitor and hard drive are as standard.
- Vast software library available.
- Lots of hardware to choose from.

CONS:
- It's still tied to yesterday's technology.
- User interface is nothing special.
- Products are aimed at business users are not cheap.

<<ends>>

SET UP

A typical PC set-up includes: the CPU with 4Mb of RAM in a desk top or tower configuration case, a separate keyboard, a large hard disk, a 3.5 inch high density floppy drive, an SVGA video card and monitor, a mouse and a copy of MS DOS and Windows.

For a 486-based computer this set-up can be bought for just under £1000, and for a 386 under £800. Portable PCs are also available which offer the same facilities (minus some expansion) with a mono LCD or Plasma display for about the same price.

PRICE/POWER

The better 386s and the 486 range of chips provide a formidable amount of raw processing power – but they need to as they have little in the way of co-processors to help them.

The PC was originally designed to have no more than 640K of RAM, and even today this limit can cause problems – adding more memory to a PC requires extended memory, expanded memory and high memory to break the limit.

The SVGA video cards provide excellent displays, but for photo-realistic results an extra video card will be needed. A monitor is considered a standard requirement, and there is no provision for connecting the video signal to a TV or video.

Sound is limited to simple beeps, although sound cards (such as AdLib compatible systems) are themselves now a standard.

USER INTERFACE

PCs use MS DOS – a command line interface of considerable power and complexity. In order to alleviate this barrier to user-friendliness, Microsoft developed Windows. Now the law suits have died down, it's safe for me to tell you that Windows is just like the WIMP system known and enjoyed by Mac and Amiga owners – and just about every computer.

Running Windows on a PC requires at least a 386 with 4Mb of RAM to do it properly, and a large chunk of hard disk space. Using Windows with processor intensive operations is not recommended, as Windows itself requires a large system overhead.

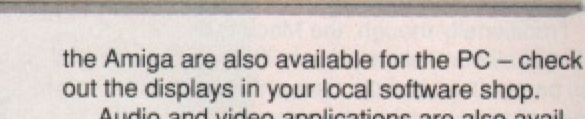
Windows runs 'on top of' MS DOS, and is therefore neither startlingly fast nor able to offer proper multitasking.

GREAT EXPECTATIONS

A new version of Windows which runs on the hardware directly has been coming 'real soon now' for quite some time, but it is unclear exactly how popular it will become. OS/2 was supposed to revolutionise the PC world, and although it is a remarkable operation system, it has so far failed to attract users in any large number.

SOFTWARE SUPPORT

Software is the PC's forte, for if you can't get a program to do what you want on a PC then the program hasn't been written for any computer. All manner of serious software is available, although the biggest growth area has been leisure titles. Most, if not all, the games packages available for the Amiga are also available for the PC – check out the displays in your local software shop.



Audio and video applications are also available, but the PC still has to succeed in the world of multimedia. This is mainly due to the lack of standards in video and audio hardware, but this could be solved soon. Multimedia 'workstations' are available as complete solutions, but they tend to be pricey.

EXPANDABILITY

PCs come with sockets for expansion cards as standard, and there are many ways to take advantage of them. Modems, hard cards, video cards, sound cards, fax cards – a flick through a PC mag will start your credit card pounding.

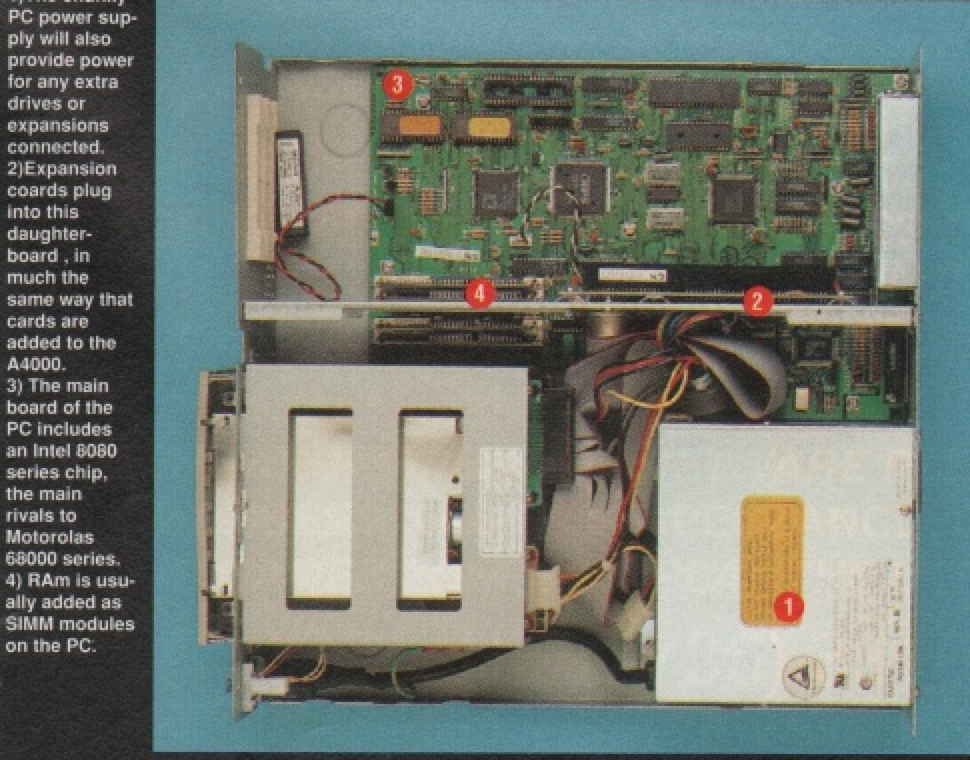
Careful choice of the PC at the outset will also allow the central CPU to be upgraded, either by moving up to a 486 or improving from an SX chip to a DX.

CONCLUSION

The PC will be with us for years to come, with regular processor up-dates and software to match, simply because it is the most popular computer on the planet. Unfortunately the 'glad to be grey' set also leave themselves open to exploitation by the software houses who charge ridiculous sums of money for the applications software. This is in some ways understandable as programming any 'adventurous' application on the PC means wading through levels of archaic system architecture.

Conservative if not downright boring, PCs are not easy machines to use. Their user interface is clumsy, and in the constant search for 'backward compatibility' genuinely new and exciting software and hardware products are, unfortunately, few and far between.

Price: starting around £800 for 386 with VGA Contact: Various – buy a copy of PC Review for more information.



1)The chunky PC power supply will also provide power for any extra drives or expansions connected. 2)Expansion coards plug into this daughter-board , in much the same way that cards are added to the A4000. 3) The main board of the PC includes an Intel 8080 series chip, the main rivals to Motorolas 68000 series. 4) RAm is usually added as SIMM modules on the PC.

» Apple Macintosh Classic II

The recent price reductions in Apple hardware have spearheaded a new push into the home market. There are a few models which are within the scope of this review, including the lower model in the Performa series and the LC II as well as the Classic.

Macintosh have always seen themselves as innovators, directly threatening IBM in their astounding ad, directed by Ridley Scott, which aired only once at half time in the Superbowl – the most expensive TV ad slot anywhere in the world.

The threat was made – 'Find out why for you, 1984 won't be like 1984', but Apple have failed to live up to their early expectations. Whilst it is true that the Macintosh is the only serious rival to the IBM PC at the business side of the market, it still has a fairly pitiful market share.

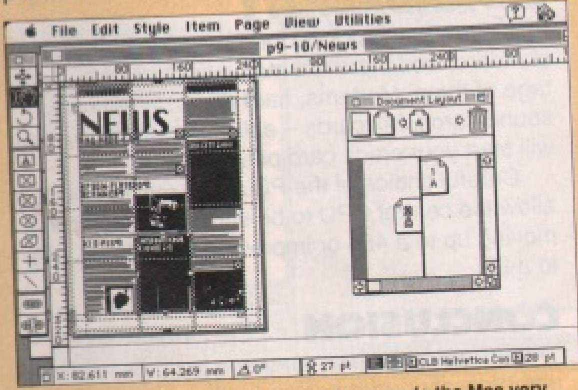
Traditionally though, the Macintosh is the easiest machine to use. The mouse only has one button, and the user only needs one braincell to know when to press it.

PROS:
- Easy to Use
- Fair graphics capability
- Good software support

CONS:
- Expensive to support
- Can be frustrating

PRICE/POWER

Macintosh equipment has also been traditionally overpriced. That is not a charge which is easy to justify any more. Prices have fallen, and systems have become more useful, but speed is still a problem.



Applications such as *Quark Xpress* have made the Mac very popular in many niche markets.

The Macintosh Classic II is an '030 based machine, though you could be fooled into thinking it contained a plain 68000 chip. The main problems with the Macintosh is that the processor is expected to do almost everything. There are a few custom chips, but nothing to the level of the graphics chips on the Amiga and Falcon.

Another problem for the Mac is that most of the system software must be stored in RAM. Particularly with System 7, large chunks of memory are taken up with fonts and 'system extensions' – the files and utilities required to run the OS properly. A typical memory overhead is around 1.3 Mb – a fairly large overhead on a machine which comes with only 2Mb as standard.

USER INTERFACE

The Mac is widely hailed as the idiot-proof machine. It's quite true that even rabid technophobes can pick up the basics in a matter of hours rather than days.

That doesn't mean there aren't some problems though. Many users feel restricted by the tyrannical Wimp system. Unlike the PC and Amiga, it is impossible to play around with files in the same way. You can't access files without using an application. All files are tied to the applications which created them and it can be a problem swapping information between two programs. It is also a bit slow, especially screen updates.

SOFTWARE SUPPORT

There is about as much software available for the Macintosh as there is for the IBM PC. Most of the software tends to be in the niche areas – word processing and DTP, but plenty of business software is available. There is a games scene on the Mac, although it is not as prolific as even the PC market. There is a minimal amount of Public Domain software too.

Unfortunately most of the software tends to be rather expensive. The premise seems to be that if people can afford the machines, they can afford overpriced software to make them work.

EXPANDABILITY

Macs do come with a variety of external connectors, including AppleTalk and SCSI ports. Unfortunately expansions such as extra memory, extra floppy drives, accelerators are all the sorts of expansion which has to be carried out by dealers. The Classic II has limited expansion bus capabilities, but the LC model is capable of handling almost anything you can throw at it – if you have the money.

The dealer-install policy has rather put off third party manufacturers, so most expansions are from Apple themselves or from closely linked manufacturers. What this means to the end user is that every peripheral for the Mac is approximately 50% more expensive than it would be on any other machine.

CONCLUSION

The Mac is very much a user's machine – a computer for people who don't have to understand what is going on, and moreover, don't want to. There is little support for more cerebral pursuits such as, shock, programming. No, I'm afraid not. Apple have decided that you don't want to do that. Unless you want a professional developer system of course. The Mac is very much a computer for the 90s – the 'nanny state' rendered in silicon. Oh, and the sound is terrible too.

Price: £799 Contact: Apple UK, 081 569 1199



New variants on this machine may become a real threat to the home market..



THE END

Well, there you have it. That's what we make of the home computer market, but I'm sure every person will have his own ideas. The judgements provided have been given by people who have actually used these machines, not just by going on the hype that is churned out by various factions. Obviously, these are very much personal observations, but that is, after all, as much as anyone can hope for. There is no scientific test for how easy a machine is to use, and even processor speed readings are inclined to give misleading results.

At the end of the day most machines seem to do better than all the others in one particular area. The Mac is the easiest to use, the Archimedes is exceptionally fast, the PC has a nice lot of software support and the Falcon has a nice music chip with MIDI ports built in.

The Amiga itself seems to be the most balanced all round machine. It is excellent for playing games, there is a reasonable amount of hardware and software available at sensible prices – it's an all-purpose performer– and isn't that what people really need in a home computer when all is said and done? CU

The machines compared

	Amiga A1200	Amiga A4030	Atari Falcon	IBM 386	Apple Mac	Acorn Archimedes
CPU Power	5	7	8	7	7	9
Ease of Use	8	8	7	5	9	8
Graphics cap.	8	8	7	6	7	7
Sound cap.	7	7	9	4	4	7
Games	9	9	5	8	7	5
Software sup.	8	8	5	9	8	6
Hardware sup.	7	8	5	9	8	6
Overall	7.4	7.8	6.4	7.0	7.0	6.4
Position:	2	1	4	3	3	4

cap = capability
sup = support



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SALES AND SUPPORT

The INDI sales team have been trained to take your order with the utmost care and efficiency. All stock offered for sale is held in stock, centrally at our group warehouse complex and is available for next day delivery, direct to your home or business. If at any time we are out of stock your money will not be banked until the product is available (a point worth checking should you feel tempted to purchase elsewhere). General information regarding product is available from our sales team, however technical support is always on hand should you need assistance.

All prices quoted are inclusive of VAT.

INDI TELESALES
Tel 0543 419999 Fax 0543 418079

CREDIT FACILITIES

INDI are now able to offer competitive credit facilities on all orders over £200. All credit facilities are subject to status and applicants must be over the age of 18. If you would like a quote simply call our sales line where acceptance can normally be notified within the hour. We are also able to offer Credit Insurance to cover repayments in the event of sickness or unemployment. Typical examples of credit available are shown below including optional credit insurance and the 90 day deferred payments. For a personal quote ring 0543 419999.

AMOUNT OF CREDIT	12 MONTHS		24 MONTHS		36 MONTHS	
	MTHLY PYMNTS	TOTAL PAYABLE	MTHLY PYMNTS	TOTAL PAYABLE	MTHLY PYMNTS	TOTAL PAYABLE
200	£22.00	£264.00	£12.43	£298.32	£9.31	£335.16
500	£54.99	£659.88	£31.06	£745.44	£23.27	£837.72
1000	£109.98	£1319.76	£62.13	£1491.12	£46.54	£1675.44

APR 29.8% WRITTEN QUOTATIONS AVAILABLE ON REQUEST
*After deposit paid.

AMIGA A1200



The latest, the ultimate, the best home computer available. 16.8 million colours, superfast processor, superb stereo sound, lightning speed – the all new Amiga 1200 has them all. Marvel at the ease with which the Amiga 1200 and its amazing 32-bit processing power devours the most demanding software. At this price the A1200 has no equal – forget the rest, it's definitely the best!

1200 STANDARD FEATURES
● 68020 Processor ● PCMCIA Slot ● 2Mb Chip RAM 3.5" Internal Floppy ● AA Chipset ● Built-in TV modulator ● Alpha-numeric keypad ● Free 12 Months At-Home Maintenance

INDI VALUE ADDED FREE
● 3 Superb Games ● International Sports Challenge ● The Cool Croc ● Paradroid 90 ● Zapsac and Zappo T-Shirt.

INDI PRICE £379.99 or from **£14.47* per month**
(*Credit price based on 36 monthly payments APR 29.8%. Total repayment £520.92 and 90 day deferred payments)

OFFICIAL A1200 HD SYSTEMS. Indi are pleased to announce the availability of two Commodore approved hard drive systems. The A1200 HD 60 and HD 80 comes complete with a full 12 months on-site warranty and support from Commodores official maintenance company, Wang UK. These two official systems are exclusively available via mail order from Indi Direct Mail. Beware of unofficial versions!!! Phone for best price. (Systems are prepped, preinstalled with Workbench 3 and include the official 12 month on-site warranty). HD versions do not include the Indi value pack.

60/80 Hard Disk upgrades available on any A1200. Upgrade includes full Wang warranty on A1200 and Hard Disk. Phone for a quote.

AMIGA RECOMMENDED PERIPHERALS & ACCESSORIES



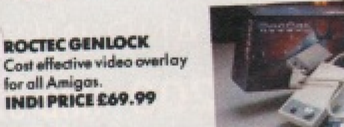
AMIGA 1084S/T COLOUR/STEREO MONITOR Commodores original and best selling colour/stereo monitor is fully compatible with all Amiga computers. This latest model now features the new 'Swivel' and 'Tilt' stand for total ease of use. Without doubt the best value for money monitor available. **INDI PRICE £189.99**
If purchased with A600/A1200 **INDI PRICE £179.99**



ZAPPO EXTERNAL 3.5" DRIVE A high quality external 3.5" drive for use with A500/A500+/A600 A/A1200. Exceptional value for money product.
INDI PRICE £59.99



A600/A1200 SMART CARDS Credit card style RAM card utilising A600/A1200 PCMCIA slot.
2Mb SMART CARD £129.99
4Mb SMART CARD £199.99
Comes with lifetime guarantee.



ZAPPO 601 RAM UPGRADES (A600)
ZAPPO 601 NC-512K RAM Upgrade no clock
£29.99
ZAPPO 601 C-1Mb RAM Upgrade with clock
£49.99



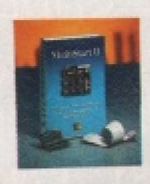


ROCTEC GENLOCK
Cost effective video overlay for all Amigas.
INDI PRICE £69.99



MICROBOTICS MBX1200 FLOATING POINT AND 32-BIT WIDE MEMORY EXPANSION FOR THE NEW AMIGA 1200 The MBX1200 is offered to Amiga 1200 owners as a cost effective, high quality upgrade solution to provide a Motorola 68881/68882 floating point unit and to support the installation of up to eight megabytes of 32bit wide Amiga FastRAM. Speeds up FPU operations by as much as 55 times that of the native A1200. MBX1200 permits the A1200 user to realise the full potential of his system and software. (Now available with real time clock add £10.00 to each option).
INDI PRICE Basic Co-Processor **£135.99**
4 MEG **£299.99** 8 MEG **£399.99**

3 Top quality **JOYSTICKS** recommended for use with any Amiga product
PYTHON 1 RRP £14.99
INDI PRICE £9.99
MAVRICK Arcade style/microswitched joystick
£12.99
AVIATOR Flight sim etc **£22.99**



MULTISTART II ROMSHARER + 1.3 ROM
Enables use of Kickstart V2.0 and V1.3 ROMs. Giving access to older software that doesn't work under new operating system. Easy to install. Compatible with A500/A500+/A600
INDI PRICE £44.99



COMMODORE MPS 1230 A high quality 9 pin Dot Matrix Printer with paper & tractor feed and is fully compatible with Epson FX80 and IBM Industry Standards. High speed 120 CPS draft mode and an NLQ mode of 25 CPS.
INDI VALUE ADDED FREE
D. PRINT – Design greetings cards, letters and posters.
AMIGA LOGO – Educational and programming language.
AMIGA VISION – Multimedia Authoring system – for video, animation, sound, speech, graphics and text.
INDI PRICE £134.99



COMMODORE MPS 1270 INK JET PRINTER
Commodores own ink jet printer. Whisper quiet yet prints at an amazing 160CPS. Possibly the best value ink jet available on the market. Especially at this price!!!
INDI PRICE £94.99
(A500/A500+/A600/A1200/C64 Compatible)

1270A – REPLACEMENT INK JET CARTRIDGE INDI PRICE £12.99

PRINTER PAPER AVAILABLE SEE FACING PAGE

AMIGA A600



12 MONTHS AT HOME SERVICE

THE WILD, THE WEIRD AND THE WICKED

A600 is an ideal starter pack containing a considered mix of software, making the most of the Amigas amazing capabilities.
COMES WITH AN EXTRA 512K RAM EXPANSION FREE!!!
PACK CONTAINS: ● A600 single drive ● Built in TV Modulator ● 1Mb Memory ● 512K RAM Expansion ● Pushover: Grandprix ● Silly Putty: Deluxe Paint III

£289.99

A600 – SD A single drive Amiga for those of you requiring a basic A600 at a very competitive price.
PACK INCLUDES: A600 single drive, built-in TV modulator, 1Mb memory. 12 months at home service.
INDI VALUE ADDED FREE
● Kick Off 2 ● Pipemania ● Space Ace ● Populous ● Microswitched joystick

INDI PRICE £239.99

A600 EPIC PACK (20Mb HD)
PACK INCLUDES: ● A600 Hard Disk (20Mb) ● 1Mb Memory ● Epic ● Rome ● Myth ● Trivial Pursuit ● Amiga Text ● Deluxe Paint III ● 12 months at home service
PLUS INDI ACCESSORY PACK AS LISTED. COMES WITH AN EXTRA 512K RAM EXPANSION FREE!!!

INDI PRICE £395.99

INDI A600 ACCESSORY PACK (Featured with WWW)
● Micro Switched Joystick ● Lockable Disk Box ● Disk Wallet ● 10 Blank Disks ● Kick Off 2 ● Pipemania ● Space Ace ● Populous ● Zapsac Carry Case ● Zappo T-Shirt.

£26.99

TERMS AVAILABLE OVER 6, 12, 18, 24 & 36 MONTHS SUBJECT TO STATUS.
WHY NOT RING FOR A QUOTE. SAME DAY RESPONSE. (SEE EXAMPLE).

Panasonic *Quiet* Colour Printing

We researched the colour printer market in great depth to find a colour printer good enough to cope with Amiga's powerful graphic output, yet at an affordable price. We found the perfect printer in the Panasonic KX-P2180 + KX-P2123 quiet printers.
We then considered that if you were going to buy a Panasonic printer, you would probably need a quality word processing package to use with it. We found that too, in 'Wordworth', yet at a retail price of £129.99 we thought that might be a little too expensive on top of your printer purchase! So together with Panasonic we decided to give a copy of 'Wordworth' free with every Panasonic printer. How's that for added value?

Panasonic KX-P2180



***WORDWORTH COMPLETELY FREE! WITH PANASONIC QUIET PRINTERS** The writers choice. The ultimate word processor for AMIGA computers. Wordworth is undoubtedly the ultimate word/document processor for the full range of AMIGA computers. The graphical nature of WORDWORTH makes producing documents faster and easier, with the enhanced printing fonts (including full Panasonic KX P2180 and KX P2123 colour printing support), Collins spell checker and Thesaurus, no other word processor comes close. "Without doubt this is one of the best document processors for the AMIGA, Today." (Amiga Format).
NORMAL RRP £129.99 inc. vat

INDI PRICE £199.99

The new Panasonic KX-P2180 9 pin quiet colour printer. Produces crisp clear text in mono or in 7 glorious colours with new quiet technology. The new KX-P2180 is typically 15dBA quieter in operation, than the competition.

- **Fast Printing Speeds** 192CPS Draft and 38 CPS NLQ
- **Colour Printing** 7 colour palette (blue, red, green, yellow, violet, magenta and black)
- **QuietPrinting** Super quiet 45-48dBA sound level (most matrix printers are typically in excess of 60dBA)
- **6 Resident Fonts** Over 6,100 type styles using Courier Prestige, Bold PS, Roman, Script and Sans Serif Fonts
- **3 Paper Paths** Paper handling from bottom, top and rear for total flexibility
- **1 Year Warranty** for total peace of mind.

Panasonic KX-P2123

INDI PRICE £239.99

The new high performance Panasonic KX-P2123 24 pin. Quiet colour printer offers leading edge quiet printing technology at an affordable price.

- **Fast Printing Speeds** 192 CPS draft, 64 CPS LQ and 32 CP SLQ.
- **Colour Printing** 7 colour palette (blue, red, green, yellow, violet, magenta and black)
- **QuietPrinting** Super quiet 43.5-46kBA sound level (most matrix printers are typically in excess of 60dBA)
- **7 Resident Fonts** Over 152,000 type styles using Super LQ, Courier Prestige, Bold PS, Roman, Script and Sans Serif Fonts
- **24 PIN Diamond Printhead** High performance and high quality output
- **1 Year Warranty** for total peace of mind.

Panasonic LASER PRINTERS

KXP-4410 LASER PRINTER

KXP-4430 LASER PRINTER



WORDWORTH COMPLETELY FREE! WITH PANASONIC LASER PRINTERS The writers' choice. The ultimate word processor for AMIGA computers. NORMAL RRP £129.99 inc. VAT



LOW INTEREST CREDIT AVAILABLE PHONE FOR QUOTE

Once again Indi have joined together with Panasonic to offer all Amiga owners the most outstanding Laser Printer offer ever. We are now able to offer high quality, professional laser printing at very affordable prices. We are also giving away a free copy of Wordworth with every Panasonic Laser Printer purchased (RRP 129.99). Whether you're looking for a laser printer to handle word processing, DTP, presentation or complex graphics applications – the Panasonic range offers you the power to meet your requirements.

KXP-4410
- 5 pages per minute
- 28 resident fonts
- Optional 2nd input bin (total printer capacity 2×200 sheets)
- Low running costs
- Parallel interface
- Optional memory expansion to 4.5Mb (0.5Mb as standard)
- HP Laserjet II Emulation

RRP £992.00
INDI PRICE £499.99 inc. VAT
WORDWORTH COMPLETELY FREE WITH LASER PRINTERS



KXP-4430
- Satinprint (optimum resolution technology)*
- 5 pages per minute
- HP Laserjet III Emulation, PCL 5
- 8 scalable fonts & 28 bitmap functions
- Optional 2nd input bin (total printer capacity 2×200 sheets)
- Optional memory expansion to 5.0Mb (1Mb as standard)

RRP £1286.00
INDI PRICE £699.99 inc. VAT
WORDWORTH COMPLETELY FREE WITH LASER PRINTERS

*(Satinprinters use optimum resolution technology to produce truly outstanding print quality. This software technique smooths away traditional jagged edges on curved characters and lines by varying the printed dot size and position).

Panasonic PRINTER ACCESSORIES



1) PANASONIC AUTOMATIC SHEET FEEDER
Automatic Sheet Feeder for KXP2180/KXP2123 holds 80 A4 sheets. **INDI PRICE £89.99**

2) PRINTER DUST COVER
Specially tailored quality dust cover for Panasonic KXP2180/KXP2123 printer. **INDI PRICE £8.99**

3) PRINTER STAND
2 piece printer stand. **INDI PRICE £9.99**

4) PAPER PACK
500 sheets quality A4 paper. **INDI PRICE £9.99**

5) CONTINUOUS PAPER
2000 sheets 1 part listing paper. **INDI PRICE £19.99**

6) PARALLEL PRINTER CABLE
To be used when connecting Amiga to Panasonic Printer. **INDI PRICE £8.99** (£5.99 if purchased with printer)

7) PANASONIC COLOUR RIBBON
Colour ribbon for KXP2180/KXP2123. **INDI PRICE £18.99**

8) PANASONIC BLACK RIBBON
Black ribbon for KXP2180/KXP2123. **INDI PRICE £9.99**

SAVE ££££'s ON THE FOLLOWING ACCESSORY PACKS

PACK 1
PANASONIC COLOUR RIBBON PACK
Contains 6 colour ribbons for KXP2180/KXP2123.
RRP £119.99 **INDI PRICE £89.99** SAVE £30.00!!!

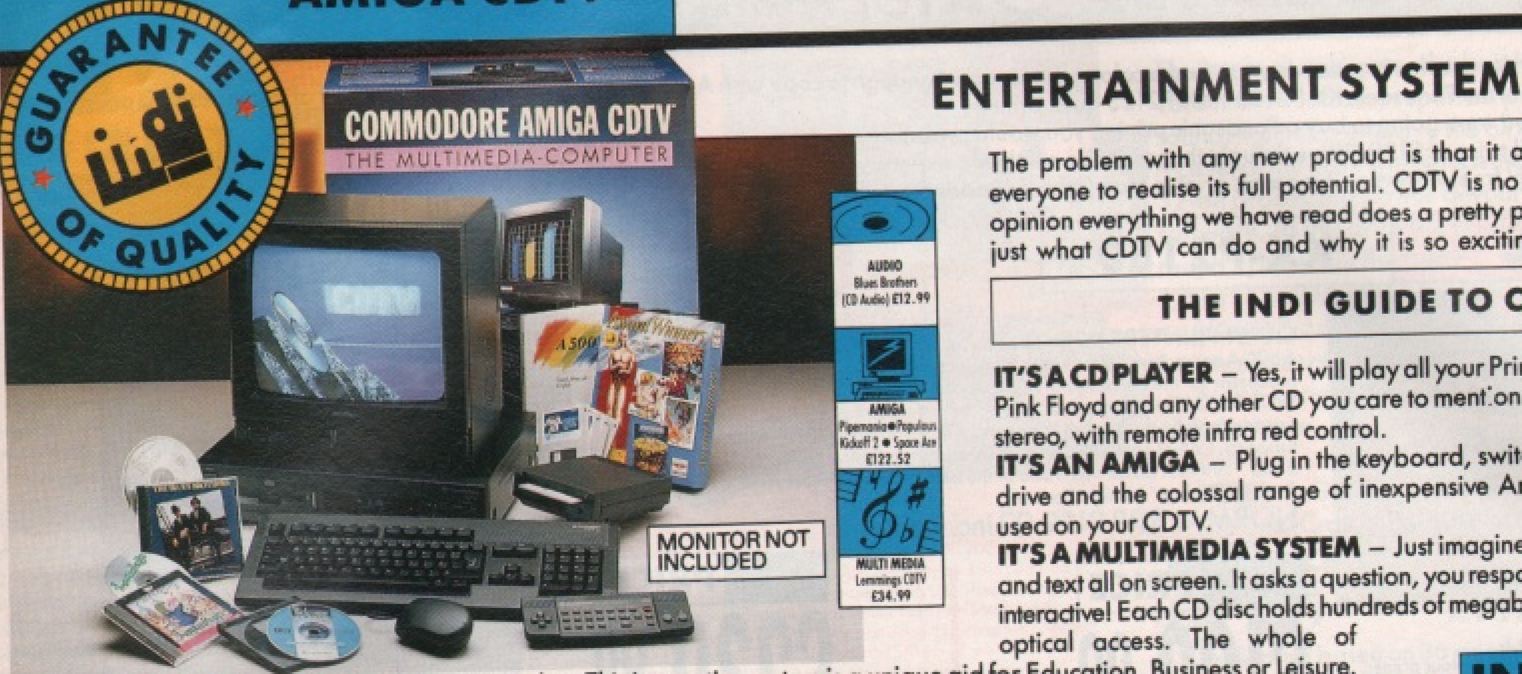
PACK 2
PANASONIC RIBBON PACK
Contains 2 black and 4 colour ribbons for KXP2180/KXP2123. RRP £99.99 **INDI PRICE £69.99** SAVE £30.00!!!

PACK 3
PANASONIC DELUXE ACCESSORY PACK
Contents = Automatic Sheet Feeder, 2×black ribbons, 2×colour ribbons, 1×dust cover, 2 piece printer stand.
RRP £169.99 **INDI PRICE £139.99** SAVE £30.00!!!

Add £2.50 carriage to all printer accessories or combinations thereof.

12 MONTHS INTEREST FREE CREDIT AVAILABLE ON CDTV EXTERNAL HARD DISK SUBJECT TO STATUS. LOW INTEREST CREDIT AVAILABLE ON ALL ORDERS OVER £200

AMIGA CDTV THE MULTIMEDIA COMPUTER TOTAL HOME ENTERTAINMENT SYSTEM



The problem with any new product is that it always takes time for everyone to realise its full potential. CDTV is no exception and in our opinion everything we have read does a pretty poor job of explaining just what CDTV can do and why it is so exciting.

THE INDI GUIDE TO CDTV

IT'S A CD PLAYER – Yes, it will play all your Primal Scream, Pavarotti, Pink Floyd and any other CD you care to mention in superb high quality stereo, with remote infra red control.
IT'S AN AMIGA – Plug in the keyboard, switch on the external disk drive and the colossal range of inexpensive Amiga software can be used on your CDTV.
IT'S A MULTIMEDIA SYSTEM – Just imagine, stereo sound, images and text all on screen. It asks a question, you respond, it responds — truly interactive! Each CD disc holds hundreds of megabytes of data with instant optical access. The whole of Hutchinson's Encyclopedia fits onto 1 disc. This interactive system is a unique aid for Education, Business or Leisure. The future is here!

PACK CONTENTS AS STANDARD • Amiga CDTV Player • CDTV keyboard • CDTV 1411 3.5" Disc Drive • CDTV Infra red remote controller • CDTV wired mouse • CDTV Welcome Disc • Manuals • Fred Fish CDTV
INDI VALUE ADDED FREE • Lemmings CDTV (£34.99) • Blues Brothers (£12.99) • Pipemania, Populous, Kickoff 2, Space Ace (£122.52)

CDTV CONNECTS DIRECTLY TO YOUR TV SET

INDI VALUE ADDED FREE

INDI PRICE £399.99

AMIGA CDTV ACCESSORIES



THE BRICK-ETTE Just plug in the Brick-ette and use any wired Amiga compatible joystick, mouse or trackball device on the Commodore CDTV. The built-in 8 bit Micro Processor gives the Brick-ette big smarts in a tiny package and makes it easy to use just plug into the remote port and it is ready to go with real time mouse or joystick movement on your CDTV. No loading of driver programs or software. No switches for mouse or joystick. Special settings (with mouse) allow you to blast away with three rapid fire modes & dual fire buttons. Comes complete with Python Micro Switched Joystick.
INDI EXCLUSIVE £49.99
With two Joysticks **£59.99**



BLACK 1084S MONITOR
At last the CDTV Monitor you have been waiting for. The original and best selling colour/stereo monitor from Commodore is now available in black to complement your CDTV.
INDI PRICE £189.99
(or £179.99 when purchased with CDTV Multi-Media pack).



If you are thinking of buying CDTV or already own one you'll be pleased to know that INDI stock all CDTV accessories and software that are available from manufacturers. We believe in CDTV and we therefore continue to support this exciting product. You will always have a source of product for your CDTV from INDI.
L to R:

CDTV Encore SCSI Controller + Internal Mount Kit	£109.99
CDTV Internal Genlock	£149.99
Black 1084S Colour Stereo Monitor	£189.99
(When purchased with CDTV Multi-Media Pack)	£179.99
CDTV Remote Mouse	£49.99
Scart TV/Monitor Lead (inc. Stereo Phono Lead)	£14.99
Megachip – 1Mb Upgrade ChipRAM Upgrade for CDTV	£159.99

AMIGA CDTV EXTERNAL HARD DISK DRIVE

You've got the CDTV, you've got the keyboard and the floppy disk drive – for a total computer solution all that's needed is an ultra fast hard disk drive.
The CDTV-HD unit boasts a massive 65Mb of hard disk storage with lightning fast access times through its SCSI interface. The unit comes complete with Workbench 1.3 and all necessary cables.



12 MONTHS INTEREST FREE CREDIT ON THIS PRODUCT. PHONE FOR DETAILS. (SUBJECT TO STATUS)

INDI PRICE £269.99

AMIGA CDTV SOFTWARE



ARTS AND LEISURE	
Advanced Military Systems	£29.99
Women in Motion	£29.99
Guinness Disc of Records	£34.99
Animals in Motion	£29.99
Connoisseur Fine Arts	£34.99
Fruits & Vegetables	£34.99
Trees & Shrubs	£34.99
Garden Plants	£34.99
Indoor Plants	£34.99
EDUCATION	
Fun School — Under 5's	£24.99
A Long Hard Day at the Ranch	£34.99
A Bun for Barney	£29.99
Cinderella	£39.99
Fun School for 6 to 7	£24.99
Fun School for over 7's	£24.99
Heather Hits Her First Home Run	£34.99
LTV-English as a 2nd Language	£34.99
Mind Run	£29.99
Mud Puddle	£34.99
My Paint	£29.99
North Polar Expedition	£49.99
Paper Bag Princess	£34.99
Scary Poems for Rotten Kids	£39.99
Tale of Benjamin Bunny	£39.99
Tale of Peter Rabbit	£39.99
Thomas' Snowsuit	£34.99
Moving Gives Me Stomach Ache	£34.99
Barney Bear Goes Camping	£29.99
Asterix English for French I	£34.99
Japan World (PAL)	£49.99
NASA, the 25th Year	£19.99
Fractal Universe	£34.99
ENTERTAINMENT	
Battlechess	£39.99
Battle Storm	£29.99
Fred Fish (CD PD1)	£19.99
All Dogs to Heaven: Electric Crayon	£34.99
Ultimate Basketball	£29.99
Classic Board Games	£34.99
Dinosaurs for Hire	£14.99
Hound of the Baskervilles	£29.99
Psycho Killer	£29.99
Sherlock Holmes, Consulting Detective	£39.99
Sim City	£29.99
Trivial Pursuit (PAL)	£49.99
Wrath of the Demon	£29.99
Team Yankee	£34.99
Raffles	£34.99
Prehistorik	£34.99
Snoopy (PAL)	£34.99
Town with No Name	£29.99
Lemmings	£34.99
European Space Simulator	£34.99
Fantastic Voyage	£34.99
Global Chaos	£29.99
Turrican I	£29.99
Turrican II	£29.99
Guy Spy	£29.99
Cover Girl Poker	£24.99
Logical	£25.99
Prey	£34.99
Curse of Ra	£24.99
Space Wars	£29.99
MUSIC	
Music Maker	£34.99
Remix	£29.99
Karaoke Fun Hits I	£14.99
Voicemaster + Microphone	£39.99
Voice FX	£19.99
REFERENCE	
American Heritage Dictionary	£49.99
Complete Works of Shakespeare	£29.99
Illustrated Holy Bible	£29.99
New Basics Electronic Cookbook	£39.99
Timetable of Business	£39.99
Timetable of Science	£39.99
World Vista Atlas	£54.99
Dr. Wellman	£54.99

WANT THE BEST IN PROFESSIONAL AMIGA. WHY NOT TAKE ADVANTAGE OF THE CREDIT DEALS AVAILABLE (SUBJECT TO STATUS). CREDIT AVAILABLE ON 6, 12, 18, 24, 36 MONTHS. WHY NOT RING NOW FOR A QUOTE. SAME DAY RESPONSE.



SAVE £££'s on this offer

PROFESSIONAL AMIGA

INDI VALUE ADDED FREE



EXCLUSIVE!

The A1500 is the ultimate home computer for the whole family and is designed to cover every computing requirement.
INDI are able to offer you exclusive deals on this outstanding product in various configurations and bundles.
All configurations come complete with the following software and accessories:-

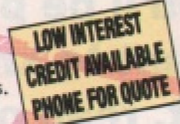
FEATURES:
- Fully functional keyboard with numeric pad separate from CPU
- Includes 2×3½" disk drives as standard with 5¼" Disk Bay.
- Integral memory and card expansion capabilities (most cost effective expansion route)
- Work bench 2.00 and Kickstart 2.04.

CONTENTS:
- Keyboard, mouse, reference manual, Puzznic, Toki, Elf (Games), D Paint III (Graphics Package), Home Accounts, The Works (Platinum edition: Wordpro, Spreadsheet, Database) Joystick

AMIGA A1500 FEATURED (see photograph above) ● 52 Mb SCSI Hard Disk ● Pack now includes 1084ST Monitor & Panasonic KX-P2123 24 pin colour printer.

INCLUDED FREE Amiga Vision and Wordworth Worth £229.99

Other 1500 configs available at very competitive prices. Phone for details.



PHONE FOR BEST PRICE

24 BIT GRAPHIC SYSTEM



OPAL VISION 24 BIT GRAPHIC SYSTEM FOR THE AMIGA 1500/2000/3000/4000. If you have an Amiga (1500/2000/3000/4000) you must have OpalVision with the ability to turn your system into a tailor-made 24 bit workstation, complete with Genlock, Frame Grabber, Chroma Key, Flicker Fixer, Pip, True 24 bit Double Buffered Display, Video Switcher, Broadcast Resolution and of course the unique DVEs, the Opal is quite simply the only choice for any 24 bit all rounder who needs a system that will grow with your imagination and needs. Quite simply, it's a spectacular product. Contents: Opal Board, Opal Paint – 24 bit graphic creation tool, Opal presents – powerful presentation package, Opal Vision Hotkey – controls and manages OpalVision and Amiga Graphics, Opal Animate – animation software package, King of Karate – the world's first 24 bit graphics computer game. **A VERY SPECIAL OFFER** FREE IMAGINE 2.0 Software. For a limited period only, INDI direct are offering a very special OPALVISION bundle, that now includes a copy of IMAGINE 2.0 worth £299.99 absolutely free. Imagine represents the state-of-the-art in 3D image processing that is able to utilize the performance of the OPALVISION board and render images in full 24-Bit colour. Now you can have the very best 24-Bit painting software, and the very best in 3D redering software when you purchase OPALVISION. Hurry this is a limited promotion, while stocks last. **INDI PRICE** PHONE FOR BEST PRICE ££££

COMMODORE 1960 MULTI-SYNC MONITOR A 14" high resolution monitor for use with A1500/A2000/A3000/A4000. **INDI PRICE** PHONE FOR BEST PRICE ££££

AMIGA 3000 25/52Mb The Amiga 3000 features the powerful Motorola 68030 processor running at 25Mhz. Complete with 52Mb SCSI Hard Drive (Single drive with no HD available) and 2Mb system RAM (6Mb Option Available). FREE AMIGA VISION SOFTWARE. **INDI PRICE** PHONE FOR BEST PRICE ££££

AMIGA 3000 – PC SYSTEM (386SX-25) The Amiga and PC hard drive system offering high performance PC386SX-25Mhz industry standard computing and the true multi-tasking performance of the Amiga, all in one box. Run the PC or the Amiga and transfer files between both operating systems. In addition to the standard Amiga 3000 specification, the Amiga 3000-PC system features 386SX processor running at 25Mhz with 1Mb of PC memory and DOS 5. **INDI PRICE** PHONE FOR BEST PRICE ££££

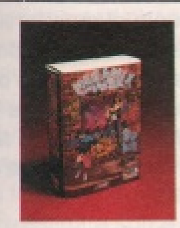
NEW! AMIGA 4000 040/120Mb The new flagship Amiga featuring the new AGA (AA) Graphics chip set with ultra high resolution and a pallette of 16.8 million colours. The heart of the Amiga 4000 is the new Motorola 68040 (Not EC Chip) processor running at a breathe taking 25Mhz. Complete with 120Mb hard drive and 6Mb of 32-Bit RAM (Additional Memory available).
INDI PRICE PHONE FOR BEST PRICE ££££ (240Mb HD version of above **product** PHONE FOR BEST PRICE ££££)

Note: Monitor is not included with any of these systems.

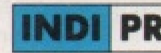
SOUND/VISION/ANIMATION

ROMBO PRODUCTS NOW AVAILABLE FROM INDI

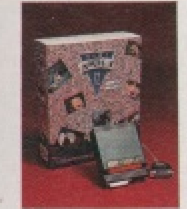




MEGAMIX is a low cost, high spec digital effects cartridge that plugs into the printer port of your Amiga. This allows you to sample or record stereo sound from almost any musical source. Special effects can be added in real time, perfect for the up and coming singer/musician/producer who wants that professional sound at home. You will find Megamix masters performance and its ease of use is unrivalled, just plug in and go...

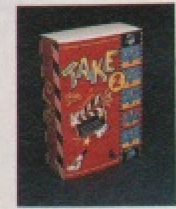


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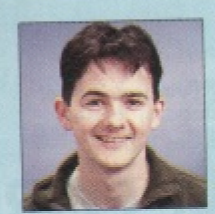
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SCREEN SCENE

The most definitive games review column of any Amiga magazine.



Dan's spent most of this month playing Dino Dini's Goal!. Actually that's a fib. He's spent the ENTIRE month playing Virgin's excellent new footie sim!!



After getting slaughtered at the Sensible Soccer World Cup, Jon's been too embarrassed to show his face in the office. He's currently hiding under a large rock.



As Tony turned in an even worse performance during the Sensible Soccer World Cup than Jon, he's been given all the crap games to review for the next 3 years.



El hairy one is often mistaken for the missing link in the evolutionary chain, so it's kind of appropriate that we gave him *Sim Life* to review. Ungabunga!

93% and a game's worth a Superstar. We hardly throw them around, but if a game gets one it'll be completely outstanding.



A CU Screen Star is for games scoring 85%-92%. If a game gets one of these, it'll be of lasting quality.



FIRST

It's crystal ball gazing time again as CU Amiga casts back the mists of time and takes a peek at the games you'll be playing later this year. If you want to know what's hot and what's rot, read on...

Twice a year most of the software industry big-wigs get together for a weekend of self-congratulatory back-slapping and drinking each other under the table. All this happens at the European Computer Trade Show, an event that attracts software houses from around the world, and which acts as a showcase for all the latest computer and console games. As usual, the CU Amiga team were out in force, freeloading like there was no tomorrow and walking off with as many freebies as our sweaty little paws could carry. But all this hard work wasn't for nothing(!), as in between hangovers and drinking copious amounts of alcohol, we managed to get the low down on all the top games you can expect to see later this year.

BENEATH THE STEEL SKY

VIRGIN

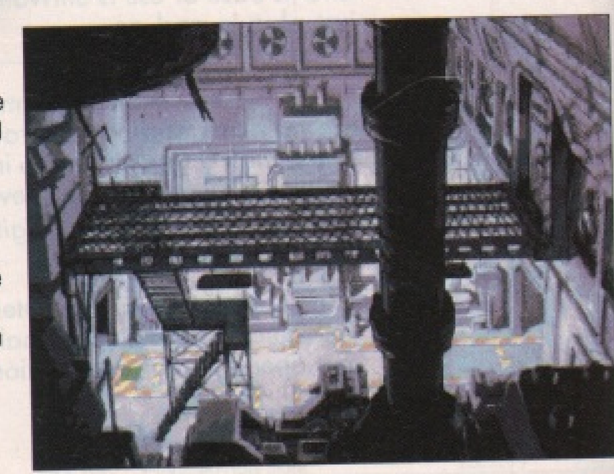
Already being touted as possible rivals to Lucasfilm and Sierra in the graphic adventure stakes, Hull-based Revolution Software are busy putting the finishing touches to their latest extravaganza. After the success of *Lure of the Temptress* last summer, expectations are high that the new adventure will establish Revolution even further in the minds and wallets of the games buying public.

Set in the far future, *Beneath the Steel Sky* has a distinct Blade Runner feel to it, reflected in the towering metropolis where much of the action takes place. Huge multinational conglomerates now govern the world and much of the planet has been reduced to a polluted wasteland in the quest for dwindling resources. Taking on the guise of a rebel leader and taken prisoner by one of the ruling conglomerates, it's up to you to escape from their clutches and disable the governing supercomputer that controls every aspect of city life.

The Virtual Theatre engine that was used to drive *Lure* has been significantly improved for its second outing, and the game advances in a more subtle manner. Characters not only react to global changes but also progress on a personal basis. For instance, if you slag someone off, they might then relate the incident to a friend who would also take a dislike to you.

Elaborate 'puzzle trees' take account of virtually any action that a player may make in the game and this feature has allowed Revolution to include multiple storylines which eventually converge on each other as the game reaches a climax.

If you read our three page work-in-progress a couple of months ago, you'll already have an inkling about how good this game is going to be. Revolution are confident they've got a *Monkey Island 2* beater here, and from what we've seen so far, we'd tend to agree.



IMPRESSIONS

EUROPEAN COMPUTER TRADE SHOW SPECIAL REPORT

STAR TREK: 25TH ANNIVERSARY
INTERPLAY

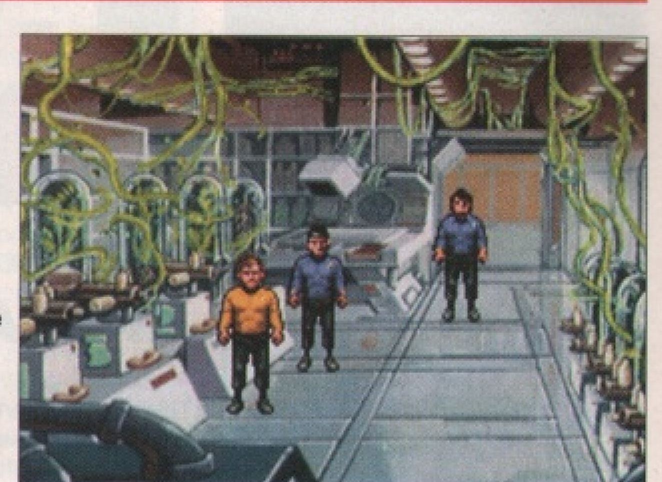
I'm probably showing my age here, but I remember the very first time that *Star Trek* was shown on the Beeb. I was about four years old and I was absolutely gob-smacked. Even today, the program is still light-years ahead of most TV science fiction – and now Trekkies everywhere are going to get the chance to try their skill at the home computer game of the smash-hit show.

It may have taken them absolutely yonks and yonks, but the US-based Interplay have finally got around to producing an Amiga version of their blockbusting *Star Trek* PC game. And it looks like an absolute corker! It's so true to the original 1960s TV show that at times it's just like watching a real-life episode.

Produced and designed in consultation with Paramount, the game is split into two distinct parts: a 3D space combat simulator and a series of graphic adventures. The 3D combat sequences place you on the bridge of the USS Enterprise and put you in control of the photon torpedoes and phaser banks as you engage enemy vessels – usually Klingons or Romulans. Once you've successfully battled your way through that lot, it's time for the planet-bound adventures to begin as a landing party beams down to investigate some alien menace, distress signal or whatever. As usual, the landing party consists of Kirk, Spock and Bones plus one security officer (who you just know is going to cop it very shortly!). Their adventures are icon-controlled and you can flip between all four characters at the click of a mouse button.



Learning from the mistakes of the PC game, the gameplay has been tweaked and improved upon as some of the original puzzles were considered to be a little too tough. There's also a handy option to skip the 3D combat sequences if you just want to get stuck into the adventure, so that's a definite improvement, too. On the down side, the Amiga conversion has to make do with 64-colour half-brite mode as opposed to the PC's 256 colours, and loading times might be a little longer, especially on the bog-standard A500. Still, there's talk of an A1200-specific version in the not too distant future, so owners of that particular machine will be able to enjoy the best of both worlds.



The episodic nature of the game is reflected right down to the opening credits that begin each instalment, and there's even an epilogue to each adventure (where McCoy and Kirk stand around, make a bad joke or two and look knowingly at each other while they take the piss out of Spock). This just has to be one of the most important Amiga releases this year and I'd be very surprised if it didn't camp out in the number one spot for weeks on end. Watch out for a cover disk soon!

SOCCER KID
KRISALIS



When we first heard about this game, we thought it was a bit of a joke. After all, how could you possibly hope to combine the arcade playability of a footy sim with a platform romp?! Fortunately, Krisalis look like they're going to pull this off as the seemingly unplayable game has metamorphosed into what could be one of the top 10 games of 1993.

Work began on *Soccer Kid* way back in February 1992 and it's only now that the finishing touches are being put to the game. Based around the 1994 World Cup, the multi-level kick'n'jump game involves a romp around the world as the impish young star attempts to collect six pieces of the missing World Cup and thus save the competition from ruin. The football mad hero has a football constantly at his feet, which he can use to clobber any of the approaching nasties as well as pick up some of the many bonuses lying around each level.

The Kid has an amazing number of trick shots at his disposal – at the last count there were 15 – and it's this type of flexibility that makes the game such a joy to play. At the stab of a fire button, you can lob the ball straight up into the air, perform an overhead bicycle kick, or smash the ball off the screen. There are plenty more where that little lot came from, too, as our rotund hero can also head the ball, balance or jump on it for extra height, and fire off a shot with enough spin to make the ball return to his feet.

At the start of the game, there's a nifty trainer option so that new players can become accustomed to the control system. This is set in the Kid's backyard and involves negotiating an obstacle-packed course where all the skills of the game come into play. In the main game, there are six levels on offer, each subdivided into three stages. Each level is set in a particular country and each stage has a theme relevant to that country. However, there's no truth in the rumour that the game will have a special skinhead soccer hooligan stage when the action switches to good ol' Blighty!

With the usual end-of-level guardians and some excellent in-game graphics and sound effects, this is probably one game that deserves all the hype it gets. Watch out for a coverdisk and review soon!

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SHOWTIME

Here's your at-a-glance guide to all the latest software releases...

BLACK LEGEND

Here's a new name you won't have heard of before, but one which will soon become very familiar indeed. Based in Switzerland, but with offices throughout Northern Europe, this new software house has an ambitious target of releasing 35 (THIRTY FIVE!) new Amiga games over the next few months. Made up of ex-demo teams from the PD scene, the company has recruited some of the best names in the business, including Alcatraz, Zeus, Noxious (the team that coded Protracker), Static Bytes, Scoopex and Fraxion. Many of their titles are nearing fruition, so watch out for a huge work-in-progress in an upcoming issue.

VIRGIN

There seems to be no stopping this London-based softco at the moment. Their release schedule for Amiga games is absolutely heaving. In the next few months, expect to see *Goal!*, *Apocalypse*, *Beneath the Steel Sky*, *Dune 2*, *Cannon Fodder* and an A1200 version of *Lands O' Lore*. They're also rumoured to have scooped up the *Aladdin* film license for floppy release and signed an exclusive deal with Acclaim and Sega to convert some of the best Megadrive titles onto the Amiga. Check out our CU NEWS for more info on that one!

OCEAN



Ocean had a busy show and also sported the best stand. Decked out in fake bamboo shoots and palm trees, the centre of attraction was a huge 12- foot dinosaur straddling their exclusive games suite. All this over-the-topness was in order to promote their *Jurassic Park* license of Steven Spielberg's bound-to-be-big dinosaur movie. Naturally, the CU team were invited in for a good few beers as well as to take a look at all the hot new releases. There looks to be no let up in Ocean's schedule as they're releasing more Amiga-specific stuff than ever before. With both *Universal Monsters* and *FA Premier League* winging their way into the softshops, the Manchester-based firm are currently putting the finishing touches to *International Open Golf Championship* and *Burnin' Rubber*, a Lotus-style racer which makes *Death Race 2000* look like a pensioner's outing.

CANNON FODDER
VIRGIN



This is probably best described as a cross between *Lemmings* and a paintball game. At your disposal are a small army of more than 300 conscripts, all with their own unique abilities and special skills. After selecting a platoon of crack troops from those on offer, you then have to choose to send them on one of 24 separate missions set across five different types of terrain. Missions typically involve rescuing or killing people, destroying installations and factories and other military-type operations. Each mission requires a different number of men to complete it, together with special weapons and equipment. After successfully completing a mission, any men that managed to survive move up in rank so that in the next mission they'll be more powerful.

The game's being designed and coded by none other than Sensible Software, so you can expect more than a few laughs along the way.



The mouse controls have been made as simple as possible, with the left button controlling the direction of the men and the right button the rate and direction of fire (in a similar fashion to *Missile Command* or *Walker*). Within each mission there are various tasks which have to be completed and this often involves splitting the men up into smaller sub-groups. At the moment, the tiny in-game sprites (a la *SensiSoccer*) can only lob grenades or fire off a volley of shots, but in the finished game it's envisaged that there will be a mini-arsenal at your troops' disposal including missile launchers, tanks, helicopters and maybe even thermo-nuclear bombs!

As you can probably tell, there's a fair bit of strategy involved here, but don't worry, as there's an awful lot to shoot at, too! In fact, this is probably the best mix of the two gaming styles we've yet seen. Watch out for *Cannon Fodder* in November.

APOCALYPSE
VIRGIN



This game's been around for longer than we care to remember and was originally commissioned by the now defunct Mirrorsoft. Since then, the original programming team, Strangeways, have handed over the project to Miracle Games who have spent the last year rewriting the code and tweaking the gameplay. Obviously influenced by Electronic Arts' *Desert Strike* and aging coin-op classic, *Choplifter*, *Apocalypse* puts you in control of a high-tech helicopter as you attempt to blast anything that moves! Equipped with heat-seeking missiles, rockets and firebombs (which can be replenished from strategically placed ammo dumps), you have to guide the 'copter over a horizontally-scrolling landscape taking out enemy outposts, vehicles, cannons, soldiers and even your own POWs. Unlike *Desert Strike*, you can actually fill your own men with lead and see them squirm as the bullets rip through their flesh. This is more like it!

Graphically, the game is stunning and wouldn't look out of place on a coin-op. The best bit, though, is undoubtedly the sound. There's literally a sample for everything that happens on screen, from the rattle of heavy machine gun fire and multi-layered explosions to the screams of the shot up troops. Watch out for a full review in a couple of months.

ODYSSEY
OCEAN

Here's the best reason yet to invest in an A1200! Digital Image Design, the team that brought you games such as *RoboCop 3*, *Epic* and *F-29 Retaliator*, are concentrating all their efforts on Commodore's latest machine and are planning to unleash two A1200-specific titles in the latter half of the year. First to reach the software shelves will be *Odyssey*, the souped-up sequel to their space combat blast 'em up, *Epic*. Fans of the first game will be pleased to learn that the new offering takes place across an entire solar system which features seven planets, three moons, asteroid belts, a spaceship graveyard and, yes, another alien race to blast to bits.

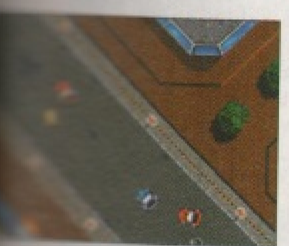


Aiming for a cross between *Wing Commander* and *Elite*, the game is not an official sequel to *Epic*, although the action is set 90 years on from the original game. 'We're undecided whether to promote the game as *Epic 2*,' mentions DID's Martin Kenwright. 'Although we were pleased with the way *Epic* turned out, the new game has been radically overhauled and is much more open-ended. *Odyssey* lets you pick and choose your own missions rather than following the linear pattern we imposed on the first game. A typical game could involve up to 80 separate missions!' With more than 300 individually controlled craft, light sourced cockpit with intuitive weapon selection and control, plus some spectacular textured polygons for that 3D feel, this one could be big.

OVERDRIVE
TEAM 17



Just as they've redefined the shoot 'em up and beat 'em up genres, so Team 17 are aiming to do the same for top down racers. If you can remember such sterling efforts as *Super-Sprint* on the ST or *Nitro* on the Amiga, then you're probably shedding a nostalgic tear already. Now going under the monicker of



Overdrive, the new game lets you get behind the wheel of five different car types including 4x4, Formula One, Buggy, Sports and Fun-Sports cars. We are also promised five different types of terrain to race across, made up of Formula One tracks, a Dust track, a 4x4 arena, a City circuit and an Ice Mountain course. Although the game will be one-player only, there will be an option to serial link two machines for a head-on clash with a mate. Featuring 32 colours and full PAL scrolling, there will be the usual on-track pick-ups and bonuses plus lots of testing track designs to push your driving skills to the limit.

INFERNO
OCEAN



Digital Image's second game is a flight sim. Taking over from where *F-29 Retaliator* left off, Inferno promises to be an even better blast. Set in the near future, a special United Nations Rapid Response team has been set up to keep the peace. Taking on the guise of the new airforce's top flyboy you have a choice of at least three aircraft at your disposal: the experimental EFA, an F22 and an F117A Stealth Fighter. In all, there will be eight theatres of operations, including Africa, Europe, South East Asia and the Middle East with more than 200 missions to undertake. Yes, you heard me, TWO HUNDRED separate missions! The game begins with a flight training school where you can familiarise yourself with each plane's flight dynamics and, once you've successfully completed your training, it's into the real world for some serious peace keeping. Missions are selected by interacting with news headlines – if you think a situation is getting out of control, send in the troops! To give you some idea how huge the game is, DID claim to have mapped 1/40th of the world's surface in 3D. 'It's looking terrific,' enthuses DID's top man, Martin Kenwright. 'We're aiming for complete diversity in the missions a player has to undertake. For instance, one minute you'll be lending aerial support to a helicopter team as they attempt to rescue hostages from a terrorist base, and the next you'll be involved in a one-on-one dog-fight. We're packing everything into this one and we reckon



you'll be stunned by the 3D graphics we're working on.' To add even more authenticity to the game, DID have also drafted in a top aeronautical engineer from Princeton University to help with the game's flight dynamics. ETA: October (but if we know DID, that's probably October 1995!)

DONK!
GLOBAL SOFTWARE

The marvellously titled *Dong!* was just a bit too marvellous for the likes of WH Smith and other software distributors, so The Hidden's first commercial release gets an unexpected name change to *Donk!*. Since we covered the game back in our February issue, things have moved on apace. The game is set in the future when duck-kind have evolved far beyond their present day state and the star of the show is a mutant Samurai duck. Having studied every known martial art, the eponymous *Donk!* has to traverse 112 (!) levels of platform tomfoolery in his quest to save the universe. This is done by collecting power crystals which are scattered around each level. There are also six parts of a key that need to be collected, too, which, when pieced together, will grant you entrance to the castle of your arch-nemesis, Big Bad Disk – look, don't blame us, we didn't write this twaddle! Naturally, it's not that easy and various enemy nasties have to be taken out along the way. In total, there are more than 2000 screens crammed into the game with more than 60 different types of monsters to slay.

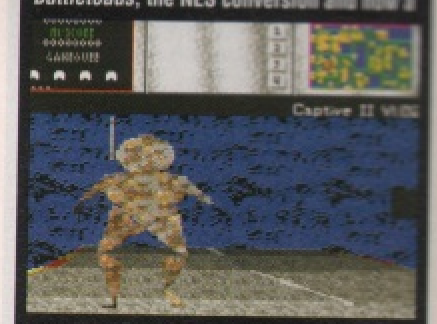




The most outstanding feature, though, is the two-player mode which splits the screen in two so that you and a friend can compete for crystals. Both sets of sprites and backdrops are squashed up and it's very reminiscent of the two player mode in *Sonic 2*. Of course, The Hidden have gone out of their way to cram in as many hidden passages, bonus levels and special effects as possible and there are all manner of power-ups and special weapons littering each stage. It's all looking very groovy and, best of all, Global are looking to release the game at a budget-busting £15.99. Other software houses, please take note!

MINDSCAPE

Quiet for some time, Mindscape have a huge number of Amiga games in the works. First to see the light of day will be *Battletoads*, the NES conversion and now a



hit coin-op in its own right. These 'toad-ally' awesome guys are incredibly big in the States and should make quite a splash when they hit the Amiga. After that, there's Tony Crowther's sequel to *Captive* to look forward to, plus a data disk for *Legend*. If all that wasn't enough to keep you happy, there's also the Amiga conversion of the Gameboy hit, *Alfred Chicken*, waiting in the wings plus the first appearance of Mario on a home computer in *Mario Is Missing*. Later on in the year we can also expect to see Maxis' *Sim Farm* make its debut on the Amiga and, just in time for Christmas, the destined-to-be-absolutely-huge-sequel to *Sim City*, the imaginatively titled *Sim City 2000*.

TEAM 17

Team 17 used the ECTS to announce that they are abandoning the low end Amigas and concentrating their efforts on the A1200. Making the announcement, Team 17 spokesman, Martyn Brown, explained: 'We've done all we can with the



A500/A600. Just take a look at *Project X*, *Alien Breed* and *Super Frog*. There's nowhere else left to go, so from now on we're developing solely for the A1200. This gives us a hell of a lot more options and you'll be seeing some really incredible stuff over the next few months.' So, later in the year, look out for an enhanced A1200 version of *Body Blows*, plus sequels to both *Alien Breed* and *Project X*. Can't be bad!

SUPERVISION

With the imminent launch of a new version of Monopoly on the Amiga, Supervision took time out to reveal some of their future releases. They're one of the few companies to be actively supporting the CDTV. Their first release for the machine will be based around Steve Jackson's phenomenally successful series of telephone-based adventure games known as FIST. After that, they're aiming to release the first adult-orientated product for the CDTV with an adaption of the best-selling Lovers' Guide videos. I think I'll have to review that one when it comes in for testing!

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PSYGNOSIS

Psygnosis surprised everyone at the show with the sheer volume of Amiga-based titles they've got under development. Taking a deep breath, here's just some of the games you can expect to be playing



later this year: *Last Action Hero*, *Armour-Geddon 2*, *Second Samurai*, *Superhero*, *Prime Mover*, *Bram Stoker's Dracula* (CDTV), *Hired Guns*, *Creepers*, *Innocent* (A1200), *Theatre of Death* (A1200) and *Microcosm* (CDTV). But that's not it by a long way. *Lemmings 3* is already in production and there's talk of a follow up to *Walker* even before the first game has been released. With their cheque books out at the show, there was a steady stream of new product being signed, so expect some B-I-G announcements very soon!

RENEGADE

Keeping a decidedly low profile at the show, Renegade were giving the computer press a preview of two big up-and-coming games. Andrew Braybrook's *Uridium 2* doesn't really need any introduction, I'm sure. It's a huge shoot 'em up, and looks set to rival *Project X*, or even better it! Their



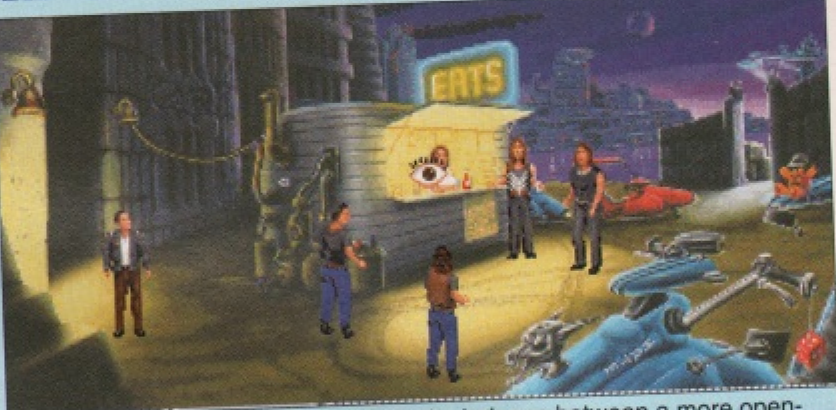
other biggie, *Ruff'N'Tumble*, is a cutesy platform romp which makes *Magic Pockets*, look like a Spectrum game.

SYSTEM 3

There was some talk about a Ferrari license and a conversion of the *Defender 3* coin-op a while ago, but both projects have been put on ice and might not see the light of day until 1994. *Putty*, meanwhile, goes from strength to strength and both the extra levels data disk and the sequel are in production and look destined for a Christmas release.



INNOCENT UNTIL CAUGHT
PSYGNOSIS



The last time Psygnosis dipped a corporate toe in the graphic adventure stakes was way back in 1989 with the less-than-wonderful *Chronoquest II*. Four years on and the Liverpool-based company is trying to diversify into other genres, so naturally, seeing the success of *Monkey Island*, *Leisure Suit Larry* et al, they've decided to jump on the bandwagon and come up with their own graphic adventure.

Set over three planets, a couple of space ships and numerous seedy bars and brothels, *Innocent* stars Jack T Lad as the carefree hero whose past career of tax avoidance has finally caught up with him. Given just 28 days to cough up the back tax on 30 years of dodgy dealings, he's got to beg, borrow or steal his way out of trouble and thus avoid being kneecapped by the local friendly taxman [*I know the feeling – Ed*]. The futuristic setting has obviously been influenced by Blade Runner and films of a similar ilk, as the game is populated by a menagerie of degenerates, freeloaders, loafers, pimps, drug addicts, hookers, thieves, hangers-on, gang members and other assorted hoodlums – in fact, pretty much like the CU Amiga team, if I'm not mistaken.

Attempting to find a balance between a more open-ended style of game and the linear style most often associated with the genre, Psygnosis have injected more sub-plots, twists, turns and double-crosses into the plot than goes on in the Italian government. The humour is pretty grim at times and adopts a cynical, almost world-weary attitude to the unfolding events. This is countered, though, by some hilarious slap-stick scenes, especially those that take place at the local brothels and pubs.

With the PC version almost complete, the London-based programming team, Divide By Ice, are due to start the Amiga conversion any day now. A1200-specific!

CYBERRACE
CYBERDREAMS

CyberRace is a 3D combat and racing simulation with the fate of the universe resting in your hands. Apparently, you've been forced to represent the Terran Empire on the cybertrack against the rest of the galaxy. How well you perform in the arcade sequences determines how the rest of the game unfolds, with different storylines emerging depending on your successes and failures on the track. Featuring something called ultra-fast Voxel landscapes (which is obvious techie-talk for 'keep hold of your hat, as this one moves faster than Jon when he spots a ten pound note lying on the floor'), the game has a number of ray-traced racing vehicles that you can individually customise to your own specifications.



Unfortunately, that's about as much as we know about the game, as the press pack and video we were given at the ECTS spends most of its time rabbiting on about the game's designer, Syd Mead. No, we hadn't heard of him either, but a quick look at his biography shows that he's designed the interiors of a number of jumbo jets as well as a couple of yachts and several theme park rides. Oh, and he was also the creative force behind the set designs for some film called Blade Runner.

ICE HOCKEY
ELECTRONIC ARTS

This game was an absolutely huge hit on the Megadrive when it was released a couple of years ago. Basically, you control an entire ice hockey team in pursuit of major honours and the action comes thick and fast as you cut up both the ice and your opponents in an effort to win each match. This is real end-to-end stuff and, although there's nothing to see so far on the Amiga conversion, Electronic Arts are planning to have it ready for a Christmas release. If it turns out to be as good as their previous conversions – namely *Road Rash*, *John Madden* and *Desert Strike* – then we'll be in for a treat.



As with all such sports games, *Ice Hockey* really comes alive in two-player mode. With the option to disable the ref, there's the chance to get down to some serious violence as your two teams battle it out on the ice. Shoulder charges, overhead slashes and even smacking the puck right into the face of the opposing goalie are all possible and fist fights break out at the earliest opportunity. Once in 'melee-mode', the action switches to a close-up of the two combatants exchanging blows, just so you can see every punch and body blow as it rifles home. At times, this game is more like a beat 'em up than a sports sim, and jolly good fun it is too!

As you'd expect from a game in the EA Sports series, there are a ton of options, such as setting off-sides and playing time as well as numerous team stats to sort out. One of the nicest touches occurs when the home crowd cheer a reckless punch thrown at one of the visiting team's players and the boos and hisses that ring out when the same happens to one of your own team members. A contender for the Christmas number one!

TORNADO
DIGITAL INTEGRATION

Talk about taking their time. DI's *Tornado* flight sim has taken more than two years to complete! Now at the final testing stage, options range from ground-based simulator training (rather dull, I'm afraid) to multi-aircraft multi-mission campaigns (seat-of-the-pants stuff). With design input from RAF aircrews and British Aerospace, *Tornado* can certainly boast a fine pedigree and this looks like it'll be more than backed up by the on-screen action. In the finished game you'll be able to choose between the Interdictor Strike Tornado (IDS) or the Air Defense Variant (ADV). Leaving aside the simulator and training modes, the combat option is broken down into a total of 54 pre-planned missions. Able to fly single aircraft or multi-aircraft missions there's also a head-to-head link up option available so that you and a friend can take to the skies and take each other on in aerial dog-fights. *Tornado* will be touching down at the end of June.



BATMAN RETURNS
KONAMI



Featuring huge Gothic backdrops and scenes lifted directly from the movie, the computer version of *Batman Returns* captures the atmosphere of the film perfectly. Denton Design have striven to capture every nuance of the smash-hit blockbuster. For instance, the Batman sprite is made up of more than 200 frames of animation so he swings and prances about the screen in a semi-realistic manner and many of the other characters have had a similar number of animation frames devoted to their every movement.

As if you need to be told, this is a scrolling platform-based beat 'em up set over five levels, with each stage based on a specific scene from the film. For instance, there's a punch up with the Red Triangle Gang, a one-on-one encounter with Catwoman as well as a final confrontation with the Penguin in his underground Ice World. To help him in his fight against crime, Batman comes equipped with an array of weapons including such old favourites as the batarang, the frisbee-like batdisc and the go-anywhere grappling hook.

Each level begins with some digitised graphics culled directly from the film as well as narrative script linking the game's events in with those of the movie. Then it's straight into the action which the game's designers reckon rivals anything you'll encounter in Street Fighter 2! Because of a clever 'decision tree', each enemy sprite takes into account a number of different events in deciding which is the best method of attack, so you'll find that no two games will ever be exactly alike.

STRIKER 2
RAGE



Although the original *Striker* gained a whopping 94% and a CU Amiga Superstar when we reviewed it last year, the game failed to make much of an impression in the software charts. Perhaps it was something to do with a little known game called *Sensible Soccer* being released at the same time, who knows?! Not to be outdone, the Rage team are back and are busy programming a sequel which, they claim, will definitely wrest the footballing crown from *Sensible Soccer* once and for all. *Striker 2* will be modelled quite closely on *Super Striker*, the SNES's version of the original game. The graphics will undergo a complete overhaul and be made much more detailed than they were in the first game. The sound effects are also going to be beefed up and any new rules that have been introduced recently, such as the back-pass rule, will be incorporated. There will be more trick shots in the sequel, and Rage are claiming that you'll be able to pull off virtually any shot you can think of.

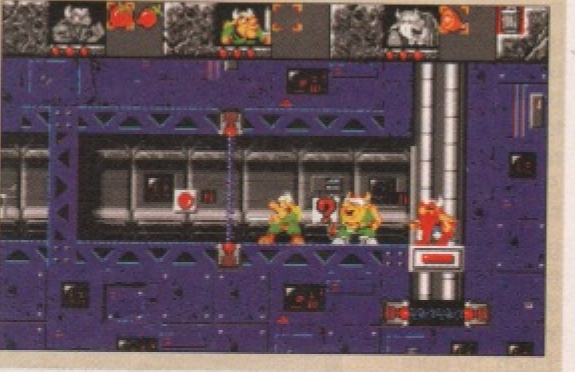
THE LOST VIKINGS
INTERPLAY

Already a hit on the SNES, *The Lost Vikings* is a platform-cum-puzzle game featuring three over-weight, middle-aged Vikings who've foregone the pleasures of pillaging and plundering and settled down to a nice quiet life with the wife and kids. Alas, their new-found pleasures of nappy changing and staying in on Saturday nights with the missus are short-lived, as the tubby trio are spirited away by a tribe of alien zoologists.

The action begins with our three Nordic heroes awakening to find themselves in the cargo hold of the aliens' spaceship. Vowing to escape, the three ex-warriors set out to vanquish their kidnappers and return to their loved ones. Between themselves and freedom, though, lie some of the most tortuous and cunning levels ever to feature in a platform game. Although things are fairly simple to begin with, i.e. pull lever to open door and step on transporter to reach inaccessible level, things soon start to get complicated.

To aid you in your bid for freedom, each of the three characters have their own special abilities. Erik the Swift is fast on his legs, can jump fairly high, and can headbutt his way through solid objects. Baleog the Beserker is a bit of a nutter really and would rather shoot first and ask questions later [much like our own Ed, in fact – Dep Ed]. He possesses both a sword and a bow and arrow and these obviously come in handy for bumping off any alien nasties that try to halt your progress. The last of your Vikings, Olaf the Stout, has certainly put on a few pounds since his marauding days, but he possesses a huge shield which can be used to fend off blows or employed as a handy parachute when taking a fall.

As you've probably gathered, each of the game's many levels and stages is solved by team work and exploiting each Viking's unique abilities to the best advantage. You only need to make one mistake or lose one man early on, and you'll have to start the whole stage all over again. Imagine a cross between *Rick Dangerous* and *Lemmings*, and you'll have a good idea what the game's about!



CORE

Arcane Design's *Darkmere* is looking very tasty. This is a huge 3D isometric adventure in which you play the role of Ebryn, the son of an Elven king known as Gildorn. We had to literally prise Jon away from it at the show, otherwise he'd have been there all day. Other stuff on show included *Bubba'N'Stix*, formerly known as *A Man With A Stick*, which is a horizontally scrolling puzzle game which revolves around Bubba's desperate attempts to get back to Earth with only his friendly alien stick to help him. Of course, this is no ordinary stick and it can be used in numerous way – as well as beating enemies over the head with it, he can use it as a lever, a snooker cue, a javelin, baseball bat and a platform to walk across. The player is made to use the stick to solve the game's many and various puzzles.

Another new release from the Derby-based softco is *Blastar*, a multi-directional shoot 'em up set over five action-packed stages positively stuffed with alien nasties as well as asteroid belts and other such obstacles. Finally, the end of the year should see the long-awaited release of *Wonder Dog*, a brilliant conversion of the Mega CD title and featuring some lush cartoon graphics and animation.

ADVENTURESOFT

Mike Woodroffe is back with a fun looking graphic adventure. The plot tells of a young lad called Simon who, since his 14th birthday has been obsessed with magic tricks.



One day, a small puppy arrives on his doorstep with a leather bound book. After browsing through its pages, Simon accidentally opens a portal to another world and goes through it. Transported to a magical kingdom, our hero must unravel the mysteries of this newly found world before he can return to Earth. We covered this in some detail last month and, I know it's a bit of a cliché, but this one really could rival Lucasfilm at their best.

GREMLIN

The Ninja from the Nth Dimension is all set to return to our screens later this year in a blockbusting new adventure. Gremlin were remaining decidedly tight lipped about any improvements to the gameplay, but it's rumoured that a special CD version of the game is in development and will be released to coincide with the launch of the Amiga CD. Watch out for a work-in-progress shortly. There was also a lot of speculation at the show (all from these quarters, admittedly!) about the possibility of a *Nigel Mansell Indy Car Championship* game – watch for more news on this one soon! As for later in the year, Gremlin have another eight Amiga games due for launch, of which one will be a major licensed product. *Litil Divil* now looks like it'll miss out on a floppy release and be one of the first titles to support the new Amiga CD console!



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ELECTRONIC ARTS

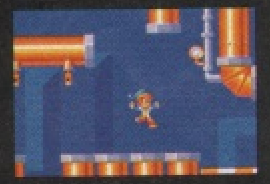
EA were decidedly quiet at the show, although they did have a presence on the Origin stand, a company which they snapped up at the beginning of the year. Bullfrog's Syndicate is progressing nicely. Mixing a business sim with a shoot 'em up



might seem a bizarre proposition, but it works a treat. Industrial espionage, bribery, sabotage, kidnapping, smuggling and killing all feature quite heavily and are the best way of getting ahead in the game. Reminds me of working for EMAP in a way! Another new release is *Space Hulk*, based on the Games Workshop's boardgame of the same name. The player has a limited number of Marines under his command with which to carry out a series of missions. These typically involve boarding Space Hulks, huge alien-infested space ships, and blasting any xenomorphs that are found there. There's a lot of strategy involved and mapping skills will definitely come in handy too. From what we've seen, it's a very atmospheric game, and is somewhat reminiscent of the Alien movies.

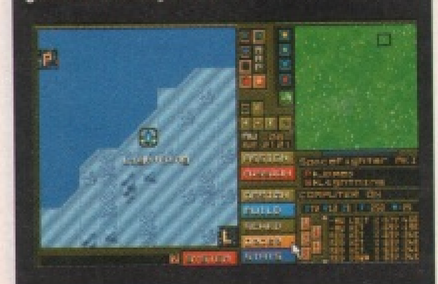
GLOBAL SOFTWARE

Most of Global's promotional efforts were concentrated on The Hidden's latest game, *Donk!*, but they've got quite a few other projects on the boil. One of the most impressive is *Woody's World*, one of the largest platform games to hit the Amiga – or so they claim! Designed and coded by Vision Software, the creative team behind PD hits such as *Microbes* and *Cybernetix*, there are more than 60 levels to explore, lots of secret rooms and hidden bonuses, two-button joypad support and some excellent gags.



IMPRESSIONS

Impressions had lots of new product on display. *When Two Worlds War* is a strategic simulation of interplanetary conflict. The year is 2121 and war has just broken out. As commander-in-chief of an entire planet's military hardware, you have an awesome array of weapons as your disposal, but so does the other side! Better and more efficient instruments of death must be built to get the technological advantage and thus win the war. Other titles to keep your eyes peeled for are: *Rules of Engagement 2*, a strategic space combat game, and *The Blue and The Grey*, a war game set during the Amercian Civil War.



DISPOSABLE HERO
EUPHORIA PRODUCTIONS

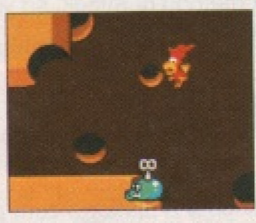
From the same development team which brought you such past glories as *Flimbo's Quest* and *Hawkeye* comes this nifty action-packed blaster. *Disposable Hero* is a six level shoot 'em up featuring some mouth-watering 32-colour graphics with a definite Gigeresque appeal. What's more, there are two craft to pilot with a total of 32 bolt-on armaments(!) and absolutely masses of alien hordes just waiting to be blasted into protoplasmic gloop.

This is the story thus far: it's 2867 and, after many years of intergalactic war, an elite fighting force has been formed, consisting of the world's most experienced troops. Known as D-Heroes, the special group has been given one over-riding mission: to locate and retrieve a number of lost blue prints to some mind-staggeringly powerful weapons systems. The blueprints were scattered throughout the planet more than a thousand years ago, but once collected they will be used to build a formidable new arsenal and thus help the D-Heroes end the brutal war once and for all.

It might not be in the same league as *Project X*, but what we've seen so far bodes well for the finished game. Each level is absolutely H-U-G-E and packed with wave after wave of enemy sprites.

Starting out with a bog-standard blaster, various armament factories have been strategically scattered throughout each stage and, once you've collected some parts of the blueprint, entering these will enable you to construct bigger and better weapons. It's this part of the game which sets *D-Hero* apart from the million other mindless blasts currently vying for your cash and adds an element of strategy to your task. You can expect to see a full review in next month's issue of CU Amiga.

ALFRED CHICKEN
MINDSCAPE



Here's a first look at *Alfred Chicken*, the hottest new star around. With the accent firmly on slapstick humour, *Alfred* is a huge multi-level platform game in which our eponymous hero has to rescue his girlfriend from the evil Meka-Chickens. With wind-up clockwork mice, huge cheesy backdrops and lots of tricks and traps infesting each level, this is not going to be easy. Best of all, every time you fowl up (sorry, couldn't resist it), Alfred pulls one of his many zany expressions which are a real delight and will have you absolutely hooting with laughter. Each level requires a number of gems to be collected within a set time limit, and contact with any one of the patrolling nasties results in the loss of one of your five lives.

SON OF THE EMPIRE
MINDSCAPE



One of Mindscape's most successful releases in recent years was an RPG called *Legend*. For an RPG it used some unusual means of depicting the action, relying on an isometric viewpoint and tiny characters. However, anyone who played it for more than five minutes was sure to be hooked by its wonderful depiction of dungeon bashing and spellcasting.

The plot for *Son of the Empire* carries on where *Legend* left off. Your party of adventurers has headed East to the Assassin's homeland after the death of his father, the Emperor. He was killed by four Guardians who have now fled to the farthest corners of the Realm. It's your job to track them down, infiltrate their ranks and then get close enough to deal out a little payback.

It's been billed as the next chapter in the *Legend* story, which basically means that it's not a sequel, more a stand-alone expansion. This means that you'll have the same characters to control – Assassin, Runemaster, Beserker and Troubador – in an Eastern setting. You can even port across your original group for extra continuity. There'll be very few changes in actual gameplay though the game engine itself will be improved. The spell system will not be changed as Mindscape feel that it's one of the best things about the game! Newcomers to the Legend's saga will have to go through the old 'What if I combine that rune with this ingredient' trial-and-error routine to make any spells; old hands will, of course, be able to use all those they already know. The adventurers will be ready to do battle within the next couple of months.

BLACK SECT
LANKHOR

Somewhat unknown in the UK, Lankhor have built up a sturdy reputation in their native France with a string of fine releases including *Grand Prix Racer*, *Vroom*, and the graphic Whodunnit, *Maupiti Island*. Recently, they've been rather quiet, but all that's due to change with the release of *Black Sect*, the first French adventure game to take place in the depths of the Yorkshire Moors. 'Eeeh, by gum, mes amis,' or something like that!



Despite its Last of the Summer Wine setting, Lankhor's latest offering is certainly not meant to be taken light-heartedly. The small village of Hobdale has been overtaken by a strange and deadly evil known as the Black Sect. Fear and terror are everywhere and the local inhabitants have fallen victim to the Sect's deadly spell. Only you (naturally!) can help put an end to this deadly infestation and, in the process, avenge the death of your grandfather, murdered by the Sect's evil leader. In order to do so, you must travel to the castle of the Black Sect and banish the evil spirits to an eternal damnation.

You only need to take a look at the screen shot here to see what a smashing looking game this is. With 34 separate locations to explore, it's not the biggest graphic adventure we've come across, but it's definitely one of the most atmospheric. Expect a review in a couple of months.

DUNE 2 – THE BATTLE FOR ARRAKIS

VIRGIN

Another Westwood project is *Dune 2 – The Battle For Arrakis*. Unlike Cryo's first game, which was reasonably true to the original novel, Westwood's sequel pays scant regard to Frank Herbert's *Dune* chronology and merely uses some of the book's conventions as a backdrop for the game.



Set a few thousand years before the first game (and the original novel), *Dune 2* is a strategic war game set against a background of spice production and a planet-wide battle to become the absolute ruler of Arrakis. The Galactic Empire has fallen behind with its mortgage payments and needs to get its hands on a large injection of cash as quickly as possible. Towards this end, the galactic Emperor has laid down a challenge for the galaxy's three ruling houses – the Harkonnen, the Atreides and the Ordos – to see which of them can mine the most Spice, the most valuable commodity known to man.

Put in control of one of the three Houses, it's up to you to build up your Spice operation while protecting it from attack by the rival mining communities. Over a period of time, you'll be able to invest your profits in bigger and better mining machinery as well as building up a vast army. The computer intelligence is such that enemy units will always attack your weakest points and, once they've taken a bit of flak, will break off to regroup and attack another flank.

There are a myriad number of options to control, with Fremen strikes taking place all the time as well as the ever-present threat of nuclear ware breaking out. The PC version was finished some time ago and the Amiga conversion should be with us by the Autumn.

WAR IN THE GULF

EMPIRE SOFTWARE

Empire have pretty much got the tank simulation genre sown up. Just to underline their dominance, they're currently working on their third tank warfare sim in the popular *Team Yankee-Pacific Islands* series. This time, a crack unit of M1 tanks are pitted against invading Iraqi forces in northern Kuwait. The year is 1995



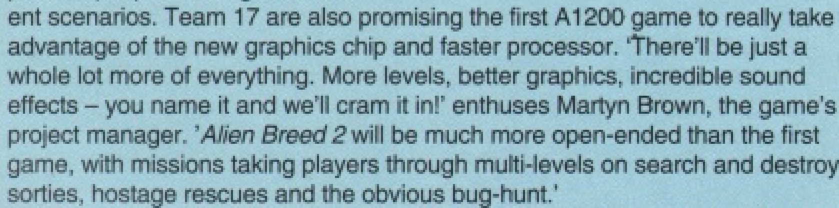
and Saddam Hussein is once more underlining his territorial claim to Kuwait by mounting a surprise attack using two battalions from the Medina and Nebuchadnezzar Division of the Republican Guard. Not only have they taken over the Sabriya and Ar Rawdatayn oilfields, but they've also invaded two small islands off the coast.

With foreign intervention still some weeks off, the ruling Al Sabah family have enlisted the help of a team of mercenary 'tankers', mostly consisting of experienced US Vets from the original Desert Storm operation. With the player simultaneously in control of four armoured vehicles, most notably the M1A1 tank, the first mission involves retaking the islands of Failaka and Bubiyan, just off the Kuwaiti shoreline. After that, it's on to the two major Kuwaiti oilfields and a major set-piece tank battle. Over 15 separate tank battles have to be fought out in the 400 square miles of oilfield to achieve success.

ALIEN BREED 2

TEAM 17

After securing the space station against the alien infestation of the first game, *Alien Breed 2* pits the player against an alien army which has taken over an entire federation planet! This time there will be many more types of Aliens, new and more devastating weapons and bolt-on power-ups, plus a range of different scenarios. Team 17 are also promising the first A1200 game to really take advantage of the new graphics chip and faster processor. 'There'll be just a whole lot more of everything. More levels, better graphics, incredible sound effects – you name it and we'll cram it in!' enthuses Martyn Brown, the game's project manager. '*Alien Breed 2* will be much more open-ended than the first game, with missions taking players through multi-levels on search and destroy sorties, hostage rescues and the obvious bug-hunt.'



The shot here features 128-colour backgrounds and is just a small taster of what to expect in the finished game. A Christmas '93 release.

LANDS O' LORE

VIRGIN

If you're a fan of *Eye of the Beholder I* or *II*, then you'll doubtless be interested in what the creative team behind those two games are up to now. Having wowed us all with the recently released *Legend of Kyrandia*, Westwood Studios are currently working on *Lands O' Lore: The Throne of Chaos*. Details of the plot are sketchy (Westwood don't want to give too much away at this stage), but it involves a shape-shifting agent of the Dark Army, the beautiful but deadly Scotia, assuming control of a mythical land. With her grip on the land growing day by day, the populace turn to you as their only possible saviour. Well, good luck sunbeam – if Westwood's previous games are anything to go by, you're bloody going to need it! This promises to be a completely gigantic Role Playing Game with eight distinct storylines and over 30 different areas to explore. There'll be a total of seven different characters to choose from and a character's development will be determined by the player's on-screen actions. If you show a particular penchant for casting spells, you'll be granted the rank of a mage, or if punching someone in the face is more your forte, then you'll be promoted to a warrior.



MICROPROSE

Sim Specialists, Microprose, have an ambitious schedule of Amiga titles lined up for the next few months. *Ancient Art of War in the Sky* is a strategy/action game combining wargaming elements with arcade-style sequences. After locating enemy bases and moving your ground troops into fortified positions, it's then a case of establishing air superiority by piloting various planes on bombing missions or taking part in aerial dogfights. There are more than 40 fictional and historically accurate campaigns to take part in, and amongst the adversaries you'll come up against are the Red Baron, Kaiser Wilhem and France's General Foch.



Review next month. Next up is *Advanced Tactical Air Command (ATAC)* which involves leading an elite force of troops in a series of covert operations against Colombian drug barons. Dogfight is another in a long line of Microprose flight sims, this time junking a lot of the technical niceties to concentrate on air-to-air combat. Players can select one of twelve different aircraft ranging from Sopwith Camels through to modern day fighters such as a F-16A Falcon. The best bit about the game, though, is the option to pit different planes from different eras against each other. Will the heat seeking missiles lock onto bi-planes or can an agile Spitfire out manoeuvre a Sea Harrier? Later in the year, Amiga owners will get the chance to take part in *Legacy*, a 3D role-playing game developed by Magnetic Scrolls that's been on the receiving end of some ecstatic reviews from the PC magazines. Set in Pressis, New England, you are suddenly contacted by the local police who inform you of your inheritance, a rambling mansion with more than its fair share of mysteries. All is not as it should be and you must face a battle of wits to save yourself from the entity that possesses the house! Returning to more familar territory, Microprose have *F-117A* and *Sub War 2050* lined up for Christmas, with *Fields of Glory*, a military action, game to follow soon after. More news on those biggies soon.

UBISOFT

Not much news from French outfit, Ubi Soft, except a superb new demo of an up-and-coming Hudsonsoft game – *Yo! Joe!* Despite the crap name this looks like an excellent platform game, filled to overbriming with all sorts of tricks and traps and other related japes. Watch for it soon.

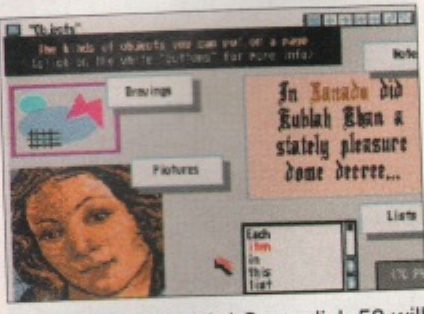
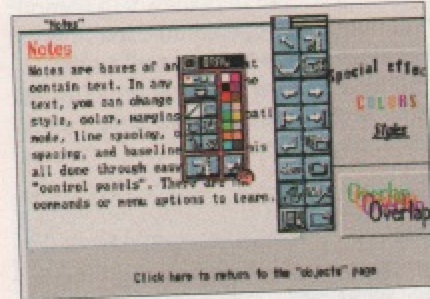


NEXT MONTH IN CU AMIGA

JUNE ISSUE ON SALE 26TH MAY

DISK 58

GOLD DISK'S HYPERBOOK

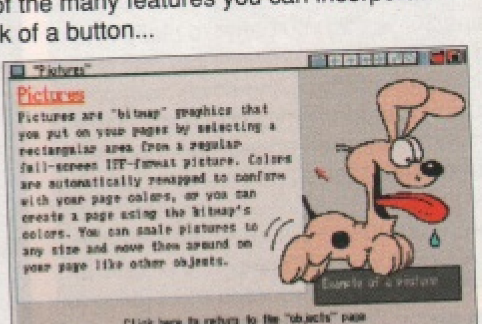



We've done it again! Coverdisk 58 will contain a full £80s worth of commercial software! Nothing less than the complete, fully-functioning version of *Hyperbook* will be yours with the June issue of CU Amiga.

Whether you're a seasoned techie or a complete beginner, *Hyperbook* gives you the power to create spectacular multi-media presentations, graphic databases, address books, story books, educational tools, slideshows and plenty more besides.

Absolutely no programming experience is needed! Anyone can use it, from absolute beginners to experienced Amiga folk, with astoundingly professional-looking results. Here are just a few of the many features you can incorporate in your *Hyperbook* creations at the click of a button...

- IFF graphics
- Structured drawings
- Sound effects
- Music
- Multicolour text
- Icon activated CLI commands
- ARexx scripts
- Smooth fades and wipes
- Scaled bitmaps



DISK 59

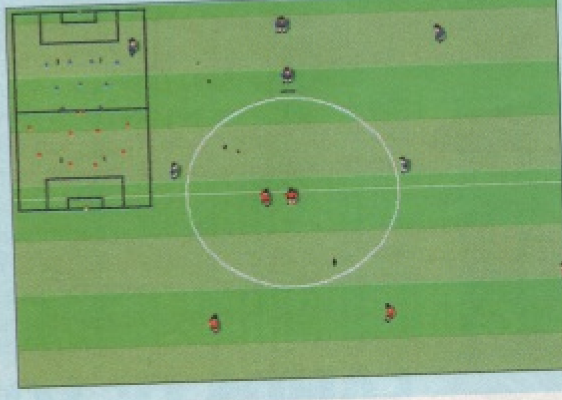
DINO DINI'S GOAL!



This is the biggest game of the year and we've got a three-minute playable demo on next month's coverdisk. Yes, that's right, Dino Dini's *Goal!* is finally set for release and those good guys and gals at Virgin have given the exclusive demo to CU Amiga. If you thought *Sensible Soccer* was good, just wait until you get your sweaty little mitts on this one.

In case you're not aware, Dino is the coding brains behind both *Kick Off* and its blockbusting sequel, *Kick Off 2*. Now he's back, with a completely new game incorporating new graphics, new code and new super-fast action. This is definitely the slickest football kickabout ever to appear on the Amiga, so don't miss it!

Massive 24x16 sprites, a special zoom mode, better ball control, realistic player acceleration, set piece moves, and improved computer intelligence are just some of the many improvements that Dino has made to his previous efforts.



Each player will have their own set of eight statistics and there's even a horizontally scrolling pitch option thrown in for good measure. Watch out for it!

* Contents subject to change without notice.

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Dino Dini is back with a brand new football sim, and Paul Rand puts the boot in.

GOAL!

When *Kick Off* was launched onto an unsuspecting world way back in 1989, it was hailed as one of the best football games ever, and Dino Dini became a software star overnight. When the sequel, *Kick Off 2*, hit the streets, it was hailed as THE best football game ever. A lot has changed since then; Anco, the company that published both titles, has since converted the latter game to a wide variety of console formats, Dini has parted company with Anco and moved over to Virgin, but he can't use the *Kick Off* name any more because it doesn't belong to him. Fans have been waiting an age for Dino to come up with the goods a third time – there's a new champion in town in the form of *Sensible Soccer*, after all – but how could he improve upon what is already a very classy title?

Goal!, the latest in the *Kick Off* saga, is much, much more than just a re-tuned, boy-racer version of the original, although when you sit down and play you immediately realise that the unique control method which underpinned *Kick Off*'s success remains. There are, however, a variety of subtle tweaks added to give greater depth of gameplay.



If the number nine has kicked the ball hard enough, that's one-nil to the human player!

IN CONTROL

The most important addition to the control of your characters is the ability of players to speed up and slow down on the ball. Keeping the joystick pushed forward causes your player to quicken his pace, which is useful when it comes to charging after an opponent who has the ball, but not terribly helpful for accurate control – more often than not, especially in the early stages of learning the rudiments of the new, improved system, you'll charge straight past your man. That's why it's important to gauge accurately the position your character should have reached in relation to the opponent in order to slow down, by nudging the stick as opposed to keeping it pushed fully forward. The gentlemanly art of tackling has been altered, too; it's impossible to run through the other players, and tackles are judged by the referee in order of severity. So, for instance, were you to go in for the ball from the side, the ref is likely to just wave play on or possibly award a free kick, but if you go in from the

WHO'S THIS DINO DINI GUY?

Dino Dini sprang himself on the computer world quite unexpectedly. Interested in programming from the age of 16, Dino used to spend his spare hours writing machine code routines – in his head! At the time, home machines such as the Amiga weren't widely available, so Dino used to compile routines from tables in books. With this firm background, he moved onto a kit computer – more like an oversized calculator than anything else – with which he wrote little games and programs. Nothing major, but from tiny acorns as they say.

Then came the Anco episode. Anil Gupta wanted a football game, and as luck would have it Dino was looking for a challenging project. The two met and a firm foundation was quickly laid. After labouring on what would become the most revolutionary sports game since *Track And Field*, *Kick Off* was finally released to the world, which at first just wasn't all that interested. Before long, however, everyone realised the error of their ways and *Kick Off* become a worldwide success. After that? *Kick Off 2* and *Player Manager*, along with numerous data and enhancement disks. But then came the split with Anco, and *Kick Off 3* was left in the balance. Whether one will ever appear is in the hands of Anco, but it definitely won't be written by Dino.

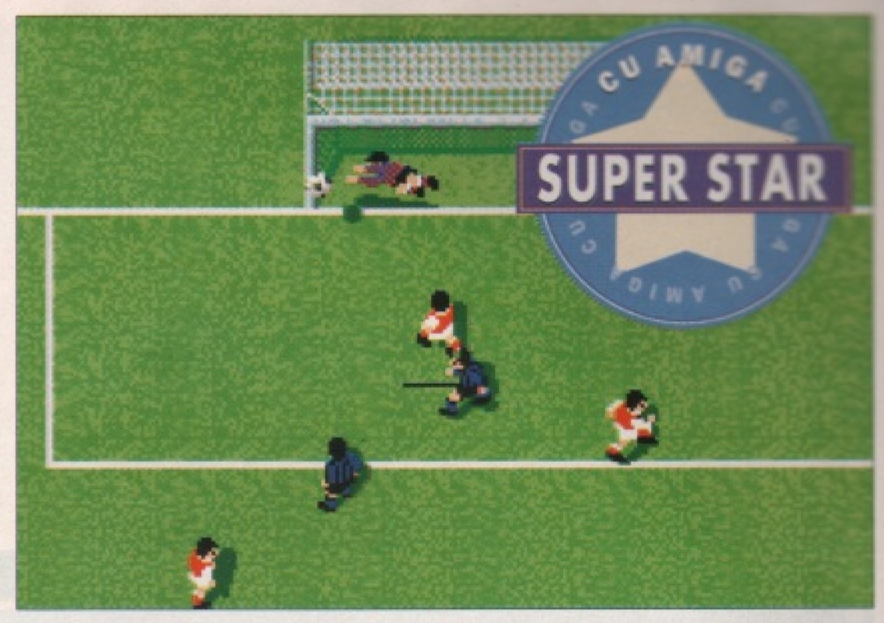
He now lives on a tract of open countryside near Cambridge, where himself and Mrs Dini are expecting their first born (a teeny Dini?). Best of luck Dino!



Although the teams built walls against free-kicks in *Kick Off 2*, there wasn't much you could do with them. *Goal!*, however, lets you add or subtract from the length of the wall.



Identical to corner taking, throw-ins use this new direction line which shows exactly where you want the ball to land. Pressing fire and pushing up or down allows you to alter the height!



The keeper hasn't got a hope of reaching that one – it's going to hit the inside of the post and bounce in for a cracker of a goal!

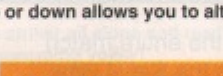
rear, it's more than likely that you'll be given a stern ticking-off or even shown a card.

CAUGHT IN A TRAP

As *Kick Off*'s free-rolling ball (as opposed to the ball being permanently glued to the feet as in practically every other soccer game before and since the game's release) was so popular, it would have been foolish to take it out. However, one complaint was the trapping aspect – basically, the player would stand on the ball and it would be almost impossible to wrestle it from him without sending him crashing to the ground and giving away a free kick – or worse.



Because Dino hasn't included an offside feature, those two centre forwards won't be penalised for being too far forward.



KICK OFF

We realised a long time ago that giving this game a bad review was a big mistake. When the future of digital kickabouts was released, mostly everyone shied away from it due to the small, less than startling graphics and 'difficult' controls. Scoring somewhere in the low 70s across the board, *Kick Off* was almost universally dismissed as 'another attempt to cash in on a popular sport'. Before too long, though, everyone was hooked. CU came out later and later each month due to extended lunchtimes spent playing, and one-time editor Mike Pattenden coined an interesting new phrase which we still rib him about when we see him. Unfortunately, the aforementioned phrase isn't printable, but it was very funny at the time.

This has been rectified in the new version of the game; when the ball is stopped, it is positioned just in front of the character, allowing for more realistic tackling and, because there is less likelihood of the game being stopped due to a foul, the game flows more fluidly. The way the ball acts has been tightened up too; gone are the ludicrously long kicks from keeper to opposition 18 yard box which seasoned *Kick Off 2* players used to their advantage; because there is no offside rule in *Kick Off 2*, you could pass the ball back to your keeper, wait for the opposition's defenders to move toward the ball and for your striker to move closer to the other side's goal. That trick cannot be pulled in *Goal!*, because you can't kick that length of shot anymore, and also because the new back-pass rule, which Dino has incorporated into his game, does not allow keepers to pick up the ball when it is kicked to them.

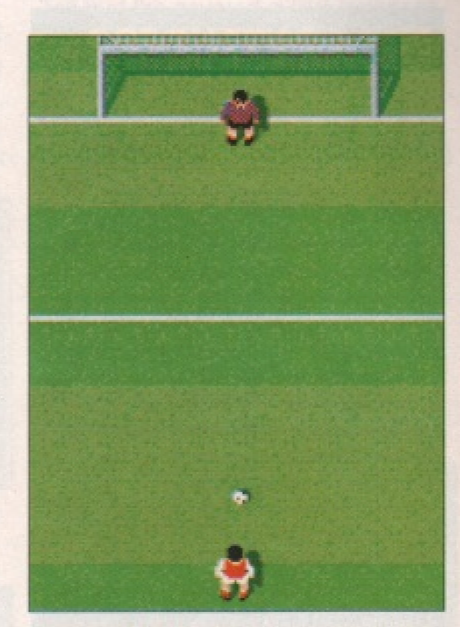
Offsides are still missing though – Dino felt they would stem the flow of the game, and I agree, but I believe there should at least be the option to play with the rule as it would add a greater level of challenge for experienced players.

The line-drawn radar screen moves from its normal top-left position so that you can see what's happening around the corner flag. Clever.

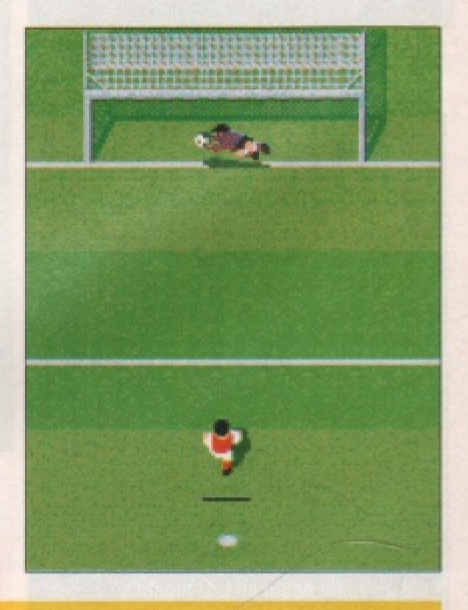
TAILOR MADE

As in the previous two titles, *Goal!* contains a number of helpful options which allow you to tailor almost the entire game to suit your skills. A variety of difficulty levels have been included to help even sad, Gateshead Diadora League players attain Aston Villa status in a matter of minutes. And speaking of individual teams, there's an absolute stack of them incorporated into *Goal!* All the big players are in there, as well as a whole host of international sides.

What is particularly impressive about this aspect of *Goal!* is that each side is made up of real players, and each player has his own statistics which mirror his real life form and general performance. For example, were you to select Arsenal (why on earth you'd do that I'm not quite sure) and take a look at Ian Wright's stats,



Unlike *Kick Off 2*, which had you gauging the direction of your shot using a moving arrow, *Goal!*'s penalty taking is much more straightforward – just push the stick and hit fire!



KICK OFF 2

How could he possibly come up with a sequel? After all, *Kick Off* had flawless gameplay and everything you could possibly want didn't it? Well, in the words of Aussie teen idol Diesel, you never miss your water until you're dry. *Kick Off 2* exploded onto an expectant scene and gave people far more than they could ever have expected. You want a set piece designer? You got it. You want improved graphics and gameplay? You've got that as well. The goalkeepers were more intelligent, as were the computer-controlled players. You had a wider selection of tactics to employ – ones which actually made a difference to the outcome of the game! Even now, three years later, it's generally agreed that *Kick Off 2* is the finest football game ever to appear, and so Dino has set himself one hell of a target to beat!

»

It's National Anthem time down on the pitch – just a couple of minutes left to go before the two sides get down to the kind of 'play' you can see in the picture inset!

Here's a similar shot, this time taken on the horizontal setting. If anything, *Goal!* is more frantic played from side to side – especially when getting to grips with the switched control system!

THE CONTENDERS

Since *Kick Off 2*, a few titles have stepped forward to take the crown, and in the eyes of many at least one of these titles has. Can *Goal!* swipe it back and place it on the Dini mantlepiece? Only time will tell.

SENSISOCCER 1.1
A slight upgrade to the original *Sensible Soccer*, version 1.1 was introduced right after completion of the ST version, itself an improvement on the Amiga release. A lot of people made a lot of noise about the game's similarity to *Kick Off*, most of all Jon Hare of Sensible Software who admitted quite freely that they had borrowed more than a couple of ideas. Essentially, they liked the game so much, they decided to do their own version!

In essence, *Sensisoccer* is a souped up *Kick Off 2*, with improved goalkeepers and player tactics, but far smaller graphics! Steve Merrett went crazy over the first release, and really lost his top over this upgrade, awarding it 94% and a Superstar. Where can we go from here?

STRIKER
Rage Software (formerly Special FX) made one hell of a start when they released *Striker*, one of the most original football games since *Kick Off*. Unlike *Sensisoccer* and *Kick Off*, *Striker* uses a revolutionary 'down the pitch' 3D viewpoint to add depth to the game, and although this might sound a little off putting, it adds heaps to the game's realism and playability.

Steve Merrett, ever one to pour his appreciation onto a good football game, also awarded this 94%, stating that it was 'The footballer of the year, and no mistake', but that could always be down to the fact that he managed to thrash Rage boss Paul Finnegan by a mighty two goals.

FA PREMIER LEAGUE FOOTBALL
Ocean's new entry into the football world, and has yet to be reviewed, but going from the playable demo on last month's coverdisk it could be something rather special. Coded for Ocean by Audiogenic – who previously proved their worth by releasing the excellent *World Class Rugby* – the game features a brand new passing control method and a full replay system that lets you backtrack to the start of the match, freeze the action at any point and view the entire pitch to see who is where and includes various multi-player options. Whether it'll come up to the same standard as *Goal!* remains to be seen.

» you would notice that his aggression and goal scoring attributes are high, whilst his defensive and goalkeeping abilities verge on the laughable. There are around 3000 different players in there, and you can change the names of each to keep up with the transfer markets. Unfortunately, it's not possible to alter the actual statistics of the players, so you'll just have to hope that when, say, Manchester United finally decide to put Bryan Robson out to pasture, his replacement possesses similar qualities. Some hope.

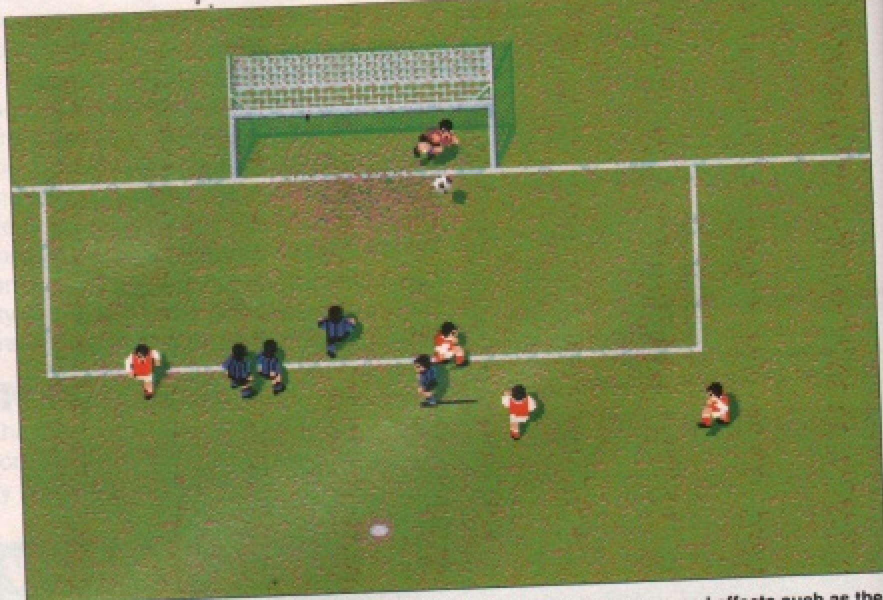
Dead ball situations have been radically altered. Whereas in *Kick Off 2* success in these areas generally relied upon your ability to use aftertouch to bend the ball around the field, Dino has used a brand new system in *Goal!*. The screen switches to a *Sensible Soccer* pulled-back view of the pitch, showing far more of the pitch than usual. When taking a throw-in or a corner, a dotted line appears next to your player. This line can be adjusted using the joystick to place the ball wherever you wish, within reason. Short or long passes can be made, along the ground or high in the air; this system takes some time to get used to, but once you have mastered its use it becomes second nature.

SENSIBLE DECISION

While we're on the subject, I've also got to mention the fact that you can play the entire match using the Sensi view should you so desire. Again, it takes some getting used to, mainly because, unlike *Sensible Soccer* which was designed to be a slower, more strategic game, *Goal!* in mini-mode plays at the same hectic pace as it does in the normal close-up view.

However, once you become accustomed to the pace of the game, you really do get the best of both worlds – the frantic arcade action for which Dini's football games are universally acclaimed, and the opportunity to do more than just kick and run because you can see more of the pitch, hence more of the players are in view and you can plan passes more easily than when having to rely on the scanner. That's not the only way to play, though – select Horizontal view on the options menu and the pitch swivels through 90°, creating in effect a whole new ball game! The joystick controls change accordingly, and it's actually much more satisfying to score a goal from this angle, as you can see more of the animation around the goalmouth.

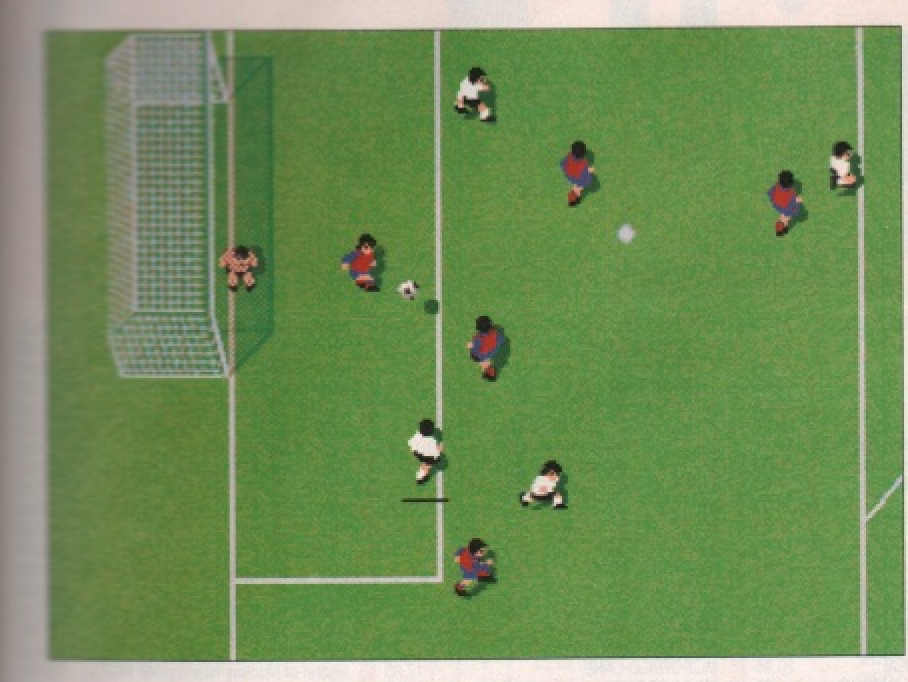
One of the 'features' of *Kick Off 2* which many players figured out at an early age was the ability to score a goal from the centre circle by simply hoofing the ball in a straight line – if you timed the kick correctly by letting



The new characters are a vast improvement on *Kick Off 2*'s basic players, and effects such as the ball hitting the woodwork (which is likely to happen here) add even more to the atmosphere.

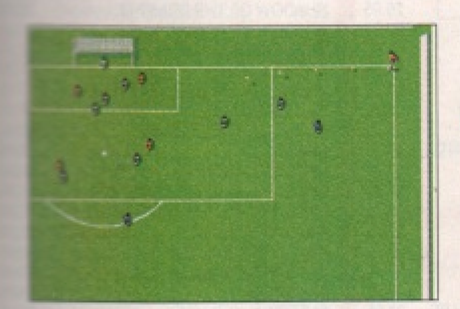
While changes to the options menu and tactics screen are largely cosmetic, there is an interesting new view: the match report, which gives you reams of useful information such as corners taken and amount of possession for both sides.




The computer springs the offside trap, leaving its striker all alone and ready to pounce – the goalie had better be wide awake to deal with the upcoming volley!

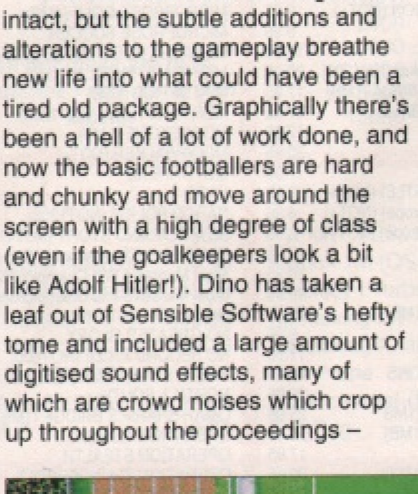
PLAYER MANAGER

By 1990, the *Kick Off* games had well and truly taken over the arcade football market. Anyone else would have left it there, being satisfied with taking over a field as experienced as that one, but not Dino. Keeping within the format of football games, he turned his attentions to managerial games with *Player Manager*, a cross between *Kick Off 1* and *Tracksuit Manager*. In *Player Manager*, most of the original *Kick Off* was evident in the arcade segment of the game, which might seem a little of a backtrack, but when you put it against a fully comprehensive managerial backbone, you have one hell of a title. Buying and selling players to create the strongest team you can, and then defining every aspect of their playing tactics, you could then step out on the pitch in your player manager guise and (hopefully) lead the team to victory. Not as easy as it sounds, but what a superb product.


Using the new corner-taking system, it's now much easier to direct a shot into the box.

loose right on the edge of the circle, nine times out of ten the ball would sail over the keeper's head and into the net. This bug has been rectified in *Goal!*, as has the other favourite which allowed you to run over the legs of an opponent in his six yard box, fall over and win a penalty.

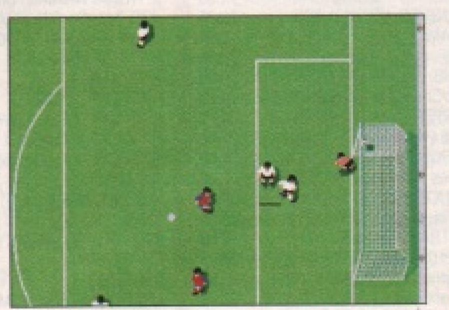
Having been a massive fan of Dino Dini's soccer titles ever since I got hold of the original *Kick Off*, I was not at all sure how much more he could do with the genre he created single-handedly. After all, the control system in *Kick Off 2* is near perfect, graphics were a bit tatty in the original but they served their purpose and it would be daylight robbery to release a supposedly new game which turned out to be the prequel with a face-lift. But now that I've got my hands on *Goal!* and tinkered with it for a period of time, I can categorically state that *Kick Off 2* has come out of the plastic surgery with a face-lift, tummy tuck and liposuction on the thighs and buttock region!

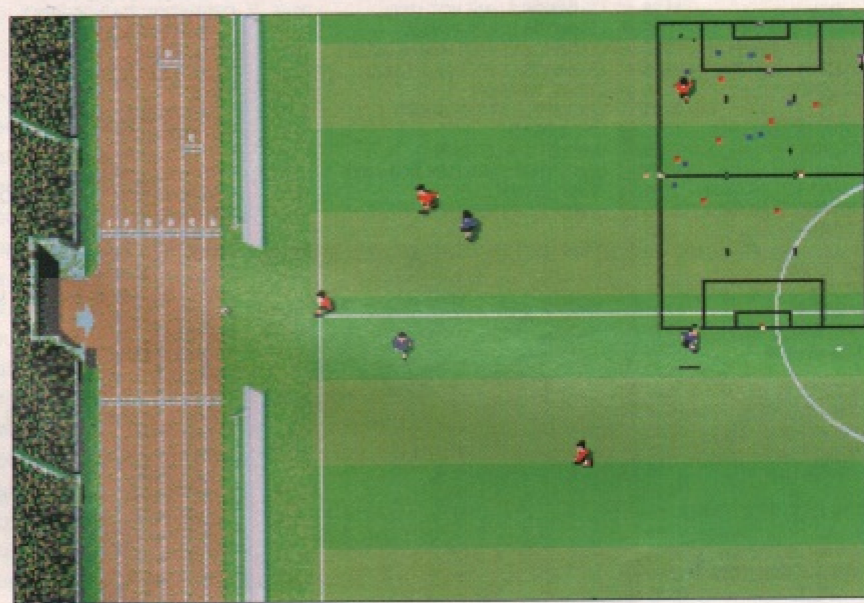


The bare bones of the original are intact, but the subtle additions and alterations to the gameplay breathe new life into what could have been a tired old package. Graphically there's been a hell of a lot of work done, and now the basic footballers are hard and chunky and move around the screen with a high degree of class (even if the goalkeepers look a bit like Adolf Hitler!). Dino has taken a leaf out of Sensible Software's hefty tome and included a large amount of digitised sound effects, many of which are crowd noises which crop up throughout the proceedings – there's a particularly effective noise for those occasions where you slam the ball off the goalpost too, which really makes the heart sink as you realise just how close you were to putting the pig's bladder into the back of the onion bag.

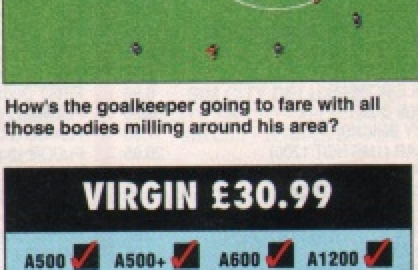
IN PERSPECTIVE

The new perspectives that you can select in *Goal!* are a fantastic addition; both are like brand new games in themselves – the *Sensi* view really is akin to a supercharged version of Renegade's smash, while the horizontal game is a dream come true for all those who enjoy left-to-right scrolling footy but can't stand the ball sticking to the toe of your boot! For some time now, the pundits have been crowing about *Sensible Soccer*'s majestic rise to the top of the championship table, shunting *Kick Off 2* into second place. I never agreed with that view; I play both games regularly, and have always felt that the coveted crown balances precariously between the two titles. Or at least, I did until *Goal!* came along. This is without doubt THE soccer game to own – it's got far more gameplay and features than anything else around today. It's definitely the new benchmark for the genre, and you can bet your life that, as you read this, Chris Yates and Jon Hare will be doing the same and wondering what they can do with *Sensisoccer 2* to stay in the arena in this battle of the computer footy Titans. CU


Goal!'s horizontal playing view adds a further dimension to an already stunning game.


Why just stick to the normal Kick Off 2 view when you can try your hand at a *Sensisoccer*-style screen? *Goal!* gives you the best of both worlds!


How's the goalkeeper going to fare with all those bodies milling around his area?



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RELEASE DATE:	MAY
GENRE:	SOCCER SIM
TEAM:	DINO DINI
CONTROLS:	JOYSTICK
NUMBER OF DISKS:	2
NUMBER OF PLAYERS:	1/2
HARD DISK INSTALLABLE:	NO
MEMORY:	1Mb

GRAPHICS	87%
SOUND	89%
LASTABILITY	95%
PLAYABILITY	93%

"The definitive Amiga soccer sim – a must for every footy fan"

OVERALL 93%

You can tailor almost the entire game to suit your own particular needs. Here we see Ian Wright's statistics – they can't be altered, but the name can be changed. Kit design has been turbocharged too, along with the League – Ipswich Town at the top? Blimey!







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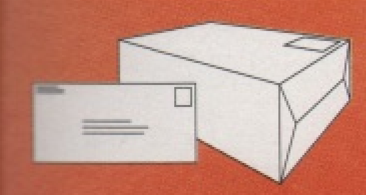
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D-DAY

When you talk about great military leaders you don't think of Mark Patterson. So why the hell is he in charge of the D-Day landings?

A short digitised film sequence introduces each stage, in this case it's the beginning of the D-Day landings themselves.

Next year marks the 50th anniversary of the Normandy landings, and we can expect to see massed flotillas of pensioned-off naval vessels and squadrons of aging aircraft to mark the occasion. US Gold, presumably bearing this in mind, have got the commemorations off to an early start with the launch of their computer simulation *D-Day*.

The game begins on the first day of the landings, June 6th 1944, and places you in the unenviable position of commander-in-chief. From this lofty office you oversee the entire operation, issuing orders to units and instigating aerial bombardments. As if this wasn't enough, the game also gives you the option of participating in individual battles.

PLAYING THE PART

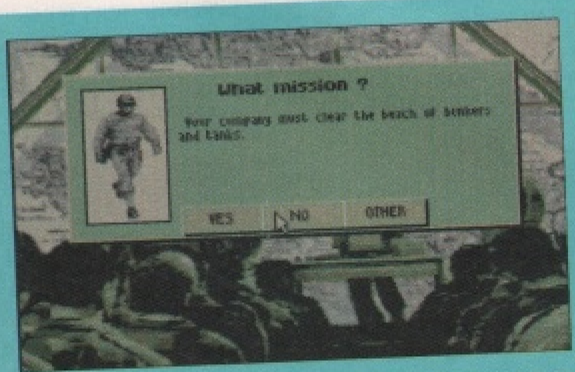
D-Day is broken into five sections. The largest is a wargame which places you in charge of the troop movements on the opening days of the conflict. In addition to this there are four action games which put you in control of paratroopers, infantry, tanks and a bomber. Obviously it would take ages to complete the game if you had to participate in every conflict, so you can be selective about which ones you involve yourself in. So that you can keep track of things, the game displays a list of all current conflicts, a feature that comes in handy when you're trying to rally troops for a charge.

MIXED BAG

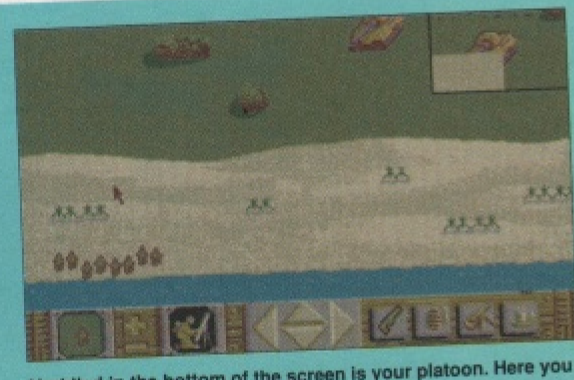
The four sub-games are a mixture of action and strategy. The aim of paratroopers is to steer your intrepid troops safely to the ground without getting them shot or landing in trees. They can be moved left and right and sped up or slowed down to compensate for wind conditions. This section is reminiscent of one of the early 80s console games, with its flat graphics and linear gameplay.

The infantry game finds you in control of a platoon of troops ranging in size from one to 10. These are armed with rifles, grenades and mortars. They can be instructed to open fire or dash behind the various bits of cover. What makes this particularly difficult is that you can only issue orders to one soldier at a time, which means that you've got to hope that nothing will happen to the others while you're trying to guide individuals to safety.

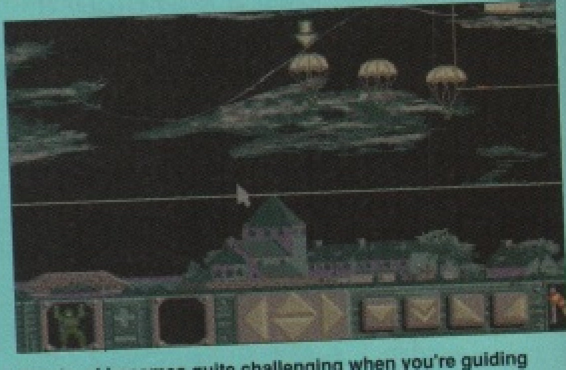
The result is a game which comes across as a poor man's *Laser Squad*. If there were any awards for laughable graphics this part of the game would sweep the opposition aside. The sprites are tiny and there's minimal animation throughout.



Select the stage you want to play, then choose your mission and head for the battle field.



Huddled in the bottom of the screen is your platoon. Here you need to guide them up the beach.



This level becomes quite challenging when you're guiding down several paratroopers.

FOUR OF A KIND

BOMBER

In the game, the B-17 bomber that you pilot isn't the most manoeuvrable thing on the planet. If you steer too far it's easy to stall the engines and end up on a one way trip to the ground. The game imposes a ceiling of 4000 feet on your flight, which is restricting, but falls in line with the simplistic nature of this section.

INFANTRY

This is the toughest section of the game. Your intrepid foot soldiers face-off against tanks and fortified enemy emplacements as they attempt to liberate villages and break through hostile lines. The way to succeed in this section is get your troops under cover as soon as possible. Failure to do so will find them picked off by enemy snipers. Despite the different scenarios, the objective remains the same throughout – simply kill every enemy in the area.

PARACHUTE

Without a doubt the worst of the four games. There's little appeal in a game such as this where you're simply steering your guys to the ground. It does become tricky when the wind picks up and you have four or five men coming down at once, but if you keep an eye on their positions it's relatively easy to get them to terra firma safely.

TANK

Driving through the countryside shooting up farm houses is great fun until you encounter an enemy unit. It only takes a near miss to damage a tank's tread so getting behind a tree or similar object is the order of the day. Once your vehicles are safely stowed it's just a matter of time before a lucky shot either way decides the outcome.

BACK TO BASICS

Bomber takes the form of a pseudo flight-sim. Your shown an external view of your B-17 Bomber with your targets marked out in the distance. The aim is to line your bomber up with them, then hit fire at the right moment to deliver its payload. Again, this is a very simple affair with few controls and almost no skill required.

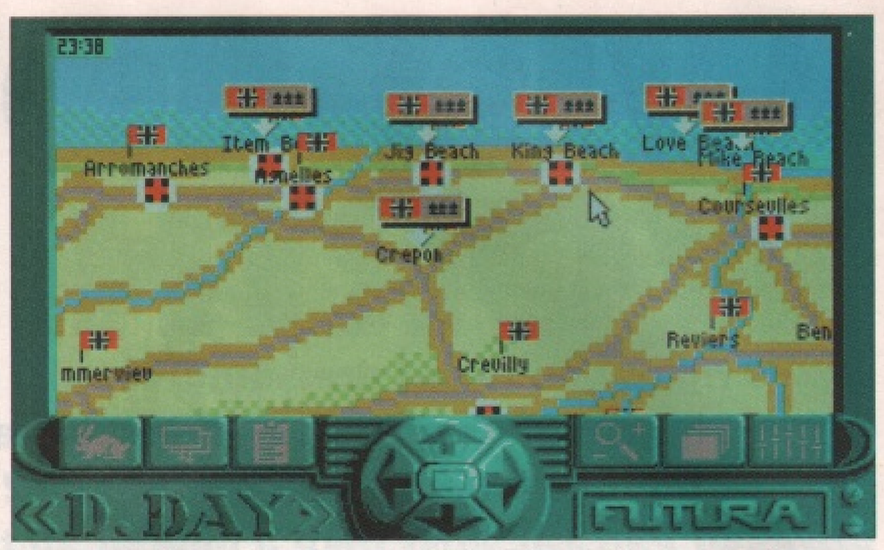
Tank is the most enjoyable of the four sub-games. As commander of a platoon of Sherman tanks you're ordered to blow up bridges, command posts and other tanks while trying to hold on to as many of your vehicles as possible. If you fancy some action you can take the machine gunner's or main gunner's seat. From this position you have to rely on the computer to do the driving, which it manages by taking the straightest route from A to B, which often incorporates buildings, trees and friendly tanks.

Before you attempt to invade Europe single-handed, it pays to try out the various training missions on offer. There are several of these and they break you into the conflict gently, pitting you against a paltry number of enemies.

RAISING THE STAKES

If you feel that pulling off a successful landing is child's play, you can bring into play two options which almost double the challenge. The first is that the German army bring their Panzer reserves into the battle. In the real thing they held back the reserve forces, which proved a disastrous move. This means that as soon as you think you're getting the upper hand, several squadrons of tanks move in, usually with drastic consequences for your infantry. The second option has Hitler waking up when the landings take place. History buffs will know that none of Hitler's staff had the bottle to wake him when they heard the landings were taking place. Activating this option greatly increases the intelligence of the German forces, as they now have their commander issuing orders.

In the manual the programmers claim to have spent three years developing this game. From the finished product I can only assume they spent 30 months watching old war movies. The four elements of this game are all shoddy to say the least. The parachuting can be categorised as no-action packed, with the format for guiding your daring paratroopers to safety being hideously dull.



The zoom mode allows you to get in close to the action and see exactly where your units are. Most enemy units are only visible when one of yours gets in close.



The beginning of the landings. The ball in the bottom-centre of the screen allows you to scroll around the map of western Europe.

The other three sections all have far superior individual counterparts. Tank, for example, is bettered by *Team Yankee.* Although the latter costs more and you don't get the other elements of *D-Day* or the historical side, its quality more than makes up for that.

Ultimately the game is boring. There's only so many times you can play each of the sub-games and, obviously, the wargame starts the same every time and there are only a few effective strategies to discover. There was so much more they could have done. For instance, the British division used a group of vehicles call 'funnies' during their landings. These were usually tanks or armoured cars adapted for mine clearing. There's also the aspect of the problems the individual divisions faced. The American paratroopers which landed behind enemy lines got separated and suffered heavy losses. Events such as these leave plenty of scope for specific scenarios.

Throughout the game the graphics are a mish-mash of sprites and vectors. That said, the vector-based tank section is fast, while the bomber features some nice shadow effects and smooth animation.

To cap it all, the wargame side is also severely lacking. Instead of dealing with such aspects as supply, reinforcements and combining units, it's simply a matter of pointing the various platoons in the right direction.

The result is a game which doesn't really go anywhere. There isn't much depth or variety, and the lack of atmosphere strips away the historical interest. A very disappointing effort.

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RELEASE DATE:	MAY
GENRE:	STRATEGY
TEAM:	LORICIELS
CONTROLS:	MOUSE
NUMBER OF DISKS:	4
NUMBER OF PLAYERS:	1
HARD DISK INSTALLABLE:	No
MEMORY:	1Mb

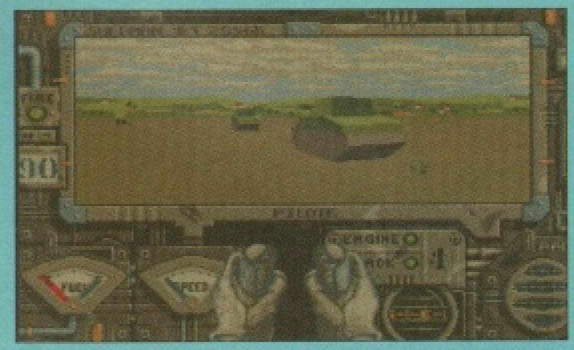
GRAPHICS	63%
SOUND	66%
LASTABILITY	62%
PLAYABILITY	54%

A good concept that has unfortunately been badly executed.

OVERALL 63%



The green arrows in the distance mark out your targets – all you need to do is keep your plane on target.



Sit in the driver's seat of the tank and you become responsible for everyone on board.



You're constantly updated on the progress of battles during the wargame.

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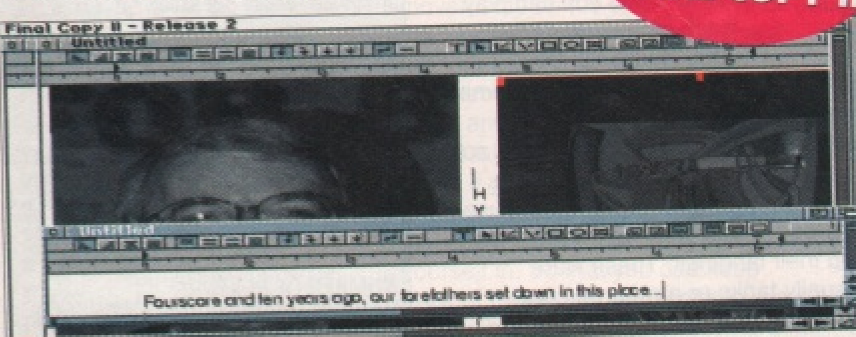
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3. The editor's decision is final.
4. Closing date for entries is June 1st 1993.
5. Illegible scrawl will be sent for analysis and the big men in white coats will come and take you away.

THE QUESTIONS

1. What is a font?
- ☐ A. A certain type-style
- ☐ B. A thing to stick babies in
- ☐ C. A small Peruvian pony

2. What's a 'jaggy'?
- ☐ A. A powerful soccer shot
- ☐ B. Scooby Doo's friend
- ☐ C. A blocky bitmap

3. What's leading?
- ☐ A. The space between lines of words
- ☐ B. The stuff people nick off church roofs
- ☐ C. What Mr. Major doesn't do

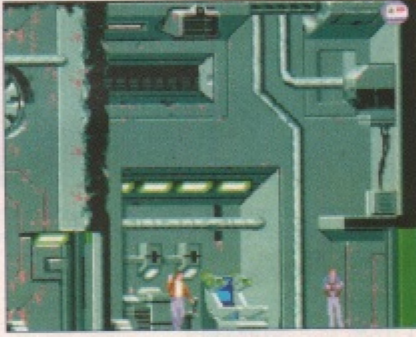
FLASHBACK

CU AMIGA SCREEN STAR

A still shot can't really show the perfect animation, but this frame of our hero changing direction should give some idea of the effort that has gone into the visuals.

Delphine finally display their latest arcade adventure, while Tony Dillon tries to convince all that they based the main character on him...

Animations like these appear whenever something important has been done. Here, you're about to find out details of your past.



I recognise that chair! Are you ready to go for a Total Recall holiday?

What happens if you 'borrow' plots from The Running Man, The Lawnmower Man, Total Recall, They Live and Blade Runner and mix them all together? You create the plot of *Flashback*. In Delphine's latest you take the role of a young scientist who, by inventing a pair of glasses which can read molecular density, discovers that aliens have infiltrated society. Once the aliens realise this, they kidnap you and drop you on their planet with a blank mind.

Flashback is an arcade adventure from the team that brought you

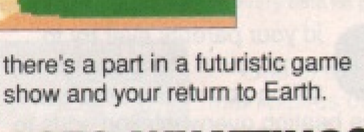


If you like, you can zoom into areas of the screen, and then scroll about with the mouse. Great for trying to find objects and switches, but you can't play the game like this.

Another World, but this is far more basic, going more for the traditional platform adventure. Unfortunately, this means lots of puzzles where you have to find an object and give it to someone else. Yawn. On the upside, though, it leads to loads and loads of action! Yes, *Flashback* is rich with the stuff Arnie's films are made of, with more scraps than *Street Fighter 2*!

WHO AM I?

You begin the game with few possessions and no idea as to who or where you are. Move one screen down and you find a holocube which gives you some idea of what to do. Off you trot and before long you're picking up stones and using them to open doors, or manipulating lifts using an intricate set of foot switches.





The game is played over seven levels, and each level is cleverly broken down into segments. Not that you'd notice the segments. From the start, there are only about eight screens you can actually get to – the rest of the level is blocked by a bridge that has to be activated. By some stroke, the last puzzle of the segment happens to be the bridge activator, so you move to the next segment without realising it.

It is the variation in the gameplay that makes *Flashback* so groovy. On level two, you race around a space city, talking to people and eventually working for a living. From there on there's a part in a futuristic game show and your return to Earth.

ROTO-WHATTING?

The graphics are fabulous. Using Rotoscaping, Delphine have come up with the most realistic main character animation ever, even better than *Prince Of Persia*. Every possible movement has been covered, and no matter what you do, the sprite always moves in a fluid and convincing way. The same goes for all the enemy sprites and other animation. 'Film-like' was a phrase that swam through my head while playing; 'the best ever' was another.

Sound has been used to minimal effect, which is strange alongside the obvious effort put into the visuals. Very few spot effects and the occasional burst of music make up the aural experience. One very nice touch, though, is the way that major effects, such as a cannon firing, can be heard faintly if you are on one of the screens adjacent to the action.

CONCLUSION

Flashback is one hell of a good game. The first few times I played it, I hated it. Coming from the wrong angle, I assumed it was a graphic adventure, and with that in mind quite rightly panned it. It was only when I found myself bashing away on level four at three o'clock in the morning that I realised what a superb game it is. Its mix of quality animation and all-out blasting make it highly recommended. CU

PIRATES AHOY!

There's no doubting that *Flashback* is a quality game. Unfortunately, it looks like it's going to be a victim of its own success. Already released in Europe, pirate copies of the game began circulating in the UK before Christmas and an English language version appeared soon after. Why then, you might ask, has its release in this country been delayed for so long? Apparently, this was because US Gold, the game's publisher over here, decided to coincide its release with the Megadrive version. Sadly, it looks likely that this decision will affect the game's sales as the playground pirates have already got their mitts on it. I would have expected a game of this calibre to zoom straight to the top of the charts, but now I doubt if it'll even make the top ten. I sincerely hope I'm wrong as *Flashback* deserves to be a huge hit – we'll just have to wait and see.

US GOLD £29.99

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RELEASE DATE:	APRIL
GENRE:	ARCADE ADVENTURE
TEAM:	DELPHINE
CONTROLS:	JOYSTICK, JOYPAD
NUMBER OF DISKS:	4
NUMBER OF PLAYERS:	1
HARD DISK INSTALLABLE:	YES
MEMORY:	1Mb

GRAPHICS	96%
SOUND	71%
LASTABILITY	86%
PLAYABILITY	88%

"Fabulous graphics, and bags of playability. Very, very playable."

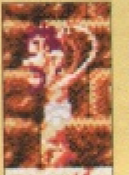
OVERALL 87%

ARABIAN

MEET THE GUYS



The first nasty to attack Sinbad is this palace guard. He's got a huge sword, but fortunately he's not too bright.



Not all people are out to get Sinbad. Free this prisoner and he'll give you a set of lockpicks.



One of the Vizier's elemental Djinnis. This one represents Earth.



This guy looks cute, but he's a walking time bomb – avoid at all costs.

The second elemental Djinni is Water. Watch him grow before shooting spikes at you.



Another elemental – this one and his partner are one of the toughest guardians to beat.



The dragon that took Leila away can be tackled at the end of one of the magic carpet sections.

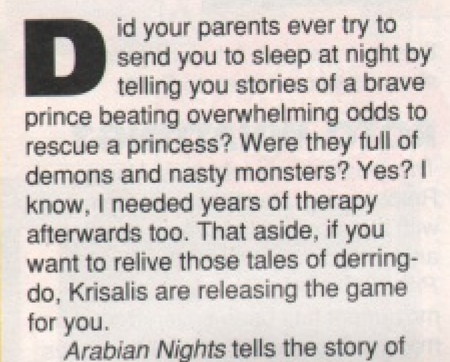


The grand old Vizier himself. Apart from an inflated ego, he's hiding a lot of magical powers so caution – and a big sword – is needed before taking him on.

As the only one in the office with a penchant for curly-toed sandals, Jon Sloan was the perfect choice for Krisalis' new platform puzzler.



Right: At the start of the game Sinbad is locked up in the Caliph's castle. Fortunately, this light bulb above his head signifies that he's had an idea how to get out. Simply press the spacebar to be illuminated.



Did your parents ever try to send you to sleep at night by telling you stories of a brave prince beating overwhelming odds to rescue a princess? Were they full of demons and nasty monsters? Yes? I know, I needed years of therapy afterwards too. That aside, if you want to relive those tales of derring-do, Krisalis are releasing the game for you.

Arabian Nights tells the story of Sinbad Jnr., Chief Gardener's Assistant Helper (2nd Class), to the Caliph of some small eastern country. He is secretly in love with the Caliph's daughter, Princess Leila (isn't the hero always?). Unfortunately, he just doesn't have the necessary amount of 000's at the end of his bank statement to make a serious play for her hand. To cap it all, the evil Vizier has designs on Leila too, and he has the power to get her. Being a generally nasty sort of bloke the Vizier can't make Leila an offer directly, so he summons a demon from one of the more unpleasant levels of Hell to steal her away. Sinbad is in the garden when the demon appears and attacks Leila; sensing trouble (boy, this kid is quick!) he starts to scale the palace walls to reach Leila's balcony. Just as he gets there the demon takes off so Sinbad grabs its foot, but his grip isn't very good and he falls to the ground below. When he wakes up Sinbad finds himself in the palace dungeon accused of kidnapping Leila and using evil sorcery. Sinbad has to escape to rescue the princess and clear his name. Which is where you come in...



Throughout the game if you look carefully you can find many hidden rooms. These can contain extra currency, power-ups or even extra lives! Use this stump to gain access to one.

FARE'S FAIR

What we have here is the usual scrolling platform fare. Guide Sinbad across the screens, leaping unleapable gaps and whacking all sorts of nasties in the process. On the face of it there doesn't seem to be much to distinguish *Arabian Nights* from the 1001 other platform romps. Fortunately, there's more to it than first meets the eye. Apart from beating the necessary joystick-twitching dangers, playing *Arabian Nights* requires a little brain power as Krisalis have had the foresight to include a puzzle element in the game. Not only does it make playing and winning harder, it also adds to the lastability of the whole thing.

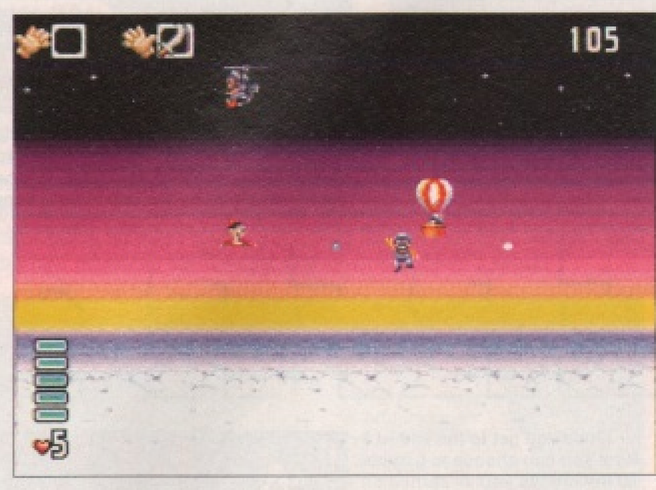
The puzzles are not brain straining but serve as a useful diversion from the main action. For instance, on level two Sinbad has to find some way to reach a high platform. Look carefully and you'll see a flower which looks as though it needs watering. If you check your inventory (he can carry up to 36 items at once) you won't find any liquid. However, earlier in the level he upset a bear

A1200 VERSION

As it stands, *Arabian Nights* is compatible with the A1200. And playing it on one of these beauties increases the overall amount of graphic detail. So, for example, you'll see loads of leaves falling from the trees, bigger dust clouds and more objects in the backdrops. Also, Krisalis are planning a super A1200-specific version which should be available some time later this year.

NIGHTS





The variety in the gameplay between levels is excellent. In order to keep up with the Vizier, Sinbad must climb aboard this magic carpet. This presents the opportunity for a little shoot 'em up action.



The Vizier has entranced many of the Kingdom's creatures to his cause. This squid looks a lot worse than it is. Chop him every time he gets close then step back to jump the bubbles he fires.

which is now weeping; to carry the water you'll need some kind of container, and a search will reveal an old granny who gives you her thimble. Put two and two together and Sinbad will soon be reaching new heights. Don't worry if this seems too obscure to solve immediately, because whenever he needs one, Sinbad will be given an on-screen clue. This appears in the form of a light bulb above the character's head and pressing the space bar brings up a message. Sometimes this is a clue, at others it'll warn you of a hidden danger immediately ahead.

SPRINTING ARAB

Sinbad is a nippy little fella and zooms around the platforms. He animates at a speedy 50 frames per second and, if you've got an '030 processor or higher, pressing F10 toggles him up to 60 fps! Not only is he fast, he's fairly agile too. He can leap huge gaps and do a snazzy running slide which, if he ducks at the same time, is extremely useful in avoiding low hanging spikes. Each of the nine levels is littered with these spikes, as well as acid pits, large spiky balls and other objects which must be avoided at all costs.

This flower looks like it needs a little water. Find granny to get her thimble, then go back to the sad bear. If you're quick Sinbad will be able to catch a few tears. When you use them on the plant it'll lift you up to the higher levels.

Coupled with the background stuff are a smattering of nasty characters who seem intent on stopping Sinbad fulfilling his quest. Contact with these objects and creatures saps our Sin of his vital energy, so either dodge them where possible or whip out your trusty sword for a swift bit of slicing.

Speaking of energy, Sinbad starts off with a fairly limited amount, denoted by blue rectangles in the left corner of the screen. Every contact with a dangerous object takes away at least one of these bars. Fortunately, scattered around the levels are treasure chests which contain varying amounts of extra energy. These chests are vital to his health and must not be squandered. Some house special magical amulets which increase the total energy units Sinbad can have. They may also contain certain useful power-ups, including keys, speedy boots and weapon boosts – Sinbad starts off with a fairly weedy sword, more of a penknife, really – but this can be increased on later levels to a longer, missile throwing slicer. It's absolutely vital to keep the various objects that you find as they will almost certainly be put to good use at some point. Tapping the space bar brings up the inventory and you can alter the objects that Sinbad's carrying in his hands according to need.

The lower levels of the Vizier's flying castle are pretty cool. Well, actually they're frozen. Find the crampons or you'll be sliding around all over the place.

One of the main pluses of the game is the amount of variety between levels. Not only do the backdrops change, but also the style of gameplay. Level one is the Caliph's dungeon and, apart from the puzzles, is a simple platform game, likewise level two, set in the forest. But level three has Sinbad on board a flying carpet swooping across the skies in a basic shoot 'em up. Later levels consist of an underwater maze, another shoot 'em up and there's even an Indiana Jones-style mine cart race.

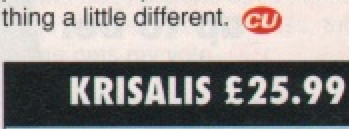
GOOD AND BAD

Arabian Nights has a lot going for it. Both the coder, Simeon Pashley, and the artist, Darren Hebden, have obviously put a lot of thought into it. Every level contains some nice comic touches, which range from Sinbad's precarious balancing act when he's too close to the edge of a platform to the jumping sheep which leap up to smash into his flying carpet (and emit a plaintive 'Baa!' when they get shot). The animation is top notch as is the soundtrack.

However, there's also a lot missing. I would have liked for there to have been more baddies and a few more power-ups. Despite the level variance, it all seems repetitive after a while. Equally, the restart points for when Sinbad is killed seem to have been chosen with little thought. There's also an odd mix of scrolling and flip-screen movement – why didn't they settle for one way of redrawing the screen?

Despite these drawbacks, this is still one helluva game. I can recommend it to anyone with a love for platform romps who fancies something a little different. CU

KRISALIS £25.99



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RELEASE DATE:	OUT NOW
GENRE:	PLATFORM
TEAM:	IN HOUSE
CONTROLS:	J, K, PAD
NUMBER OF DISKS:	2
NUMBER OF PLAYERS:	1
HARD DISK INSTALLABLE:	NO
MEMORY:	1Mb



GRAPHICS	91%
SOUND	89%
LASTABILITY	78%
PLAYABILITY	85%

An above-average platform romp, but lacking long-term challenge.

OVERALL 86%



One of the funnier sections in the game occurs in the Spooky Castle. This is one of the secret rooms and is a treat to find. The buffers on the walls act like giant springs and fling the frog from pillar to post – frog pinball!



The floor of the Spooky Castle contains a whole host of surprises to delight and astound you. The undulating spikes shown above only stun, but they are a pain (I'll leave you to guess where) nevertheless.



The final world is covered in ice and snow. This places our already slimy friend in a slippy position. It's very difficult to start running and then it's almost impossible to stop. This is made extra hard by the use of tight jumps and lots of spikes.

SUPERFROG

CU AMIGA SCREEN STAR

Faster than a speeding hedgehog, stronger than umpteen ninjas, Jon Sloan sees if Team 17's amphibious antics are all they're croaked up to be.

There have been many cutesy characters on the Amiga. The hero of Team 17's latest platform romp, though, has to rank up there as one of the strangest. And he's brought a small, green, elastic blob to keep him company.

Our hero was once a handsome young Prince and in love with a beautiful Princess (aren't they always?). Unfortunately, a wicked witch took exception to love's young dream and kidnapped the Princess after turning our hero into his current slimy self. So, off he leaped to the riverbank to drown his sorrows. Luckily for him a bottle of Lucozade happened to be floating by and our intrepid hero plucked it from the stream and took a swig. Now, I wasn't aware of this, but Lucozade apparently has a strange effect on frogs and turned this one into a super version of the mud dwelling leapers. (Remember kids don't try this at home or I'll have the RSPCA onto you sharpish.)

Once you get to the end of a level you can choose to gamble all the credits you've earned on this. It's an unusual way of doing it, but quite effective. Apart from score bonuses there's extra lives and level codes up for grabs.

Endowed with super skills he jumps off to find the Princess for a quick snog and a bit of retrogression before kicking some witch butt. Yes, it is a crap plot but who cares so long as the game plays well?

FROG'S AWAY

The game is divided into six worlds, each sub-divided into a number of levels. The levels are completed by collecting a set amount of coins, usually 99, explained as being a toll to access the next level. These lie scattered around the platforms and, in common with the rest of the genre, there are loads hidden in secret rooms. But if finding the things wasn't hard enough, you're also up against the clock. The time limits set are not too harsh, however, and can be increased by collecting the various Lucozade bottles that appear at certain points. These also act as energy boosts and come in very handy 'cos there's quite a few nasties that drain your energy. As well as the orange liquid there's fresh fruit to collect which gives you a hefty bonus at the end of the section.

To add to your woes each level is replete with its own selection of

Superfrog contains loads of sections like this where you have to jump over a spiky pit at the correct angle to grab all the coins. One wrong move means instant death.



A DAY IN THE LIFE

Now that the Prince has turned a little green what lies in store for him? Here's a few facts that our once handsome hero should know.

- Frogs belong to the order Anura which is the largest amphibian family, accounting for 90% of all living species. They are characterised by the complete absence of a tail, the only exception to this being the Tailed Frog which uses its for mating.
- All frogs have extremely long and muscular hind legs with four articulating joints, instead of the normal three. This anatomical difference enables the web-footed wonders to leap longs distances in a single bound, the South American Flying Frogs can even leap from tree top to tree top.
- Frogs are generally semi-water dwellers and are very sensitive to habitat changes. Some can burrow into the mud and go into suspended animation during the dry season. Others, however, are killed in great numbers by man's interference with their homes. The balance is being redressed in the U.S. though by the introduction of frog routes which let migrating froggies cross the highways without being horribly squished by the passing vehicles.
- When their thoughts turn to luurve frogs produce thousands of offspring, or tadpoles, in an effort to combat the natural depletion in numbers due to predators and habitat changes. Fortunately most frogs are long lived and thus have the opportunity to breed many times during their lives compensating for these losses. Let's hope that the hero here changes back before he gets too amorous, otherwise the Princess may be in for a bit of a shock!

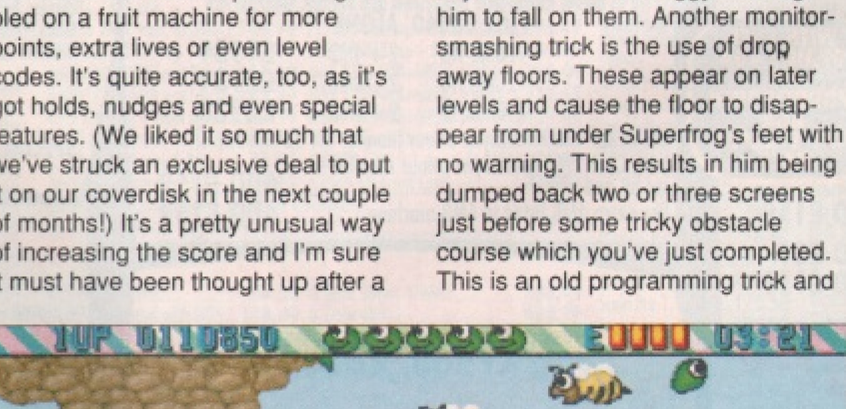


energy draining creatures. These nasties come in various forms depending on the level you're on. For instance, in the Forest (World 1) they appear as wasps, hedgehogs and snails amongst others, whilst in the Ancient level (World 4) you'll meet bats, mummies and snakes. Some can be killed in the time honoured fashion of jumping on their heads, others are completely invulnerable to your attacks. Unfortunately, the only way to find out which is which is to jump and see. The only other way to bump them off is to find Spud, Superfrog's elastic blob of a friend. Once he's been picked up he can be thrown, boomerang-like, at enemies and is especially useful for hitting the flying varieties.

Talking of power-ups, there's a few other useful ones. The wings enable froggy to stay suspended for longer or glide further. The drawback is that to make them work you have to pummel the firebutton 'till you think your thumb's going to fall off. The other pick-ups are speed pills (fast and slow), restart pills (return here after you die) and a nifty invisibility pill. This turns the frog invisible, except for his eyes, so that he can run past and through most nasties (including the swinging spiky balls!).

Once you've found your friend, Destructo-Spud, he can be thrown at airborne enemies. He's a useful little character as some of the flying meanies are placed at vital points in Superfrog's flightpath.

BONUS GAME



At the end of certain sections all the fruit, coins and time you've got are totted up and credits awarded. These can be converted into points or gambled on a fruit machine for more points, extra lives or even level codes. It's quite accurate, too, as it's got holds, nudges and even special features. (We liked it so much that we've struck an exclusive deal to put it on our coverdisk in the next couple of months!) It's a pretty unusual way of increasing the score and I'm sure it must have been thought up after a long night in the pub. Still, it's good fun and makes a change from all that running and jumping.

The main gameplay itself is extremely tough, with a well thought out learning curve. The levels start pretty simply in the Forest, platforms are fairly wide and there aren't too many creatures to avoid. Later levels get a lot tougher with the introduction of springs to jump on, narrow landing spaces, switches to hit in sequence and loads of bloody spikes. These latter objects are extremely frustrating as even the slightest contact causes instant death. They're made even more hair shredding by the fact that they're often placed near to objects which stun froggy causing him to fall on them. Another monitor-smashing trick is the use of drop away floors. These appear on later levels and cause the floor to disappear from under Superfrog's feet with no warning. This results in him being dumped back two or three screens just before some tricky obstacle course which you've just completed. This is an old programming trick and a rather dirty one at that. It simply is a means of artificially prolonging gameplay and is a technique not worthy of coders like Team 17.





This screen provides you with a useful reference on Superfrog's progress through the game. It looks good too but serves no other useful purpose.

PLAY TO WIN

If you want to get a little further in Team 17's stunner of a platformer we've got the codes for you. If you don't want to cheat close your eyes now and don't open them till I tell you.

WORLD 1 No code	WORLD 4 467464
WORLD 2 392822	WORLD 5 452234
WORLD 3 343522	WORLD 6 ??????

SECRET WORLDS

Superfrog is a very polished product, possibly the best that Team 17 have ever produced. Their aim was to make a classic in its genre. This they have done, as it has all the elements worthy of such a title.

From the Eric Schwartz intro right through every level the graphics scream workmanship at you – just look at how Superfrog's expression changes to one of grim determination as he breaks into a run. The sound too is apt for the genre and the gameplay never less than gripping.

On a separate point, Team 17 claim the game is compatible with all Amigas but I found that there are occasional problems running it on higher Spec. machines, such as the A1500 and A4000. Problems vary, but they range from corrupt graphics on the fruit machine option to complete crashes. Nevertheless, this game gets my vote. CU

TEAM 17 £26.99



TEAM 17, MARWOOD HOUSE, GARDEN STREET, WAKEFIELD, WEST YORKSHIRE WF1 1DX. Tel: 0924 291867

RELEASE DATE:	OUT NOW
GENRE:	PLATFORM
TEAM:	IN HOUSE
CONTROLS:	JOYSTICK
NUMBER OF DISKS:	3
NUMBER OF PLAYERS:	1
HARD DISK INSTALLABLE:	NO
MEMORY:	1Mb

GRAPHICS	88%
SOUND	81%
LASTABILITY	87%
PLAYABILITY	92%

"A soon-to-be milestone in the history of Amiga platformers."

OVERALL 89%

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1/2 PRICE 1500 S/W PACK Only with 1500 Pack at only £24.99
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52MB ....£1149.00 120MB ....£13...

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SEE NEW AGA GG PACK BELOW
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68030	68882	2 + 2MB	2 + 4MB
80MB HD	-	999	1129
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With CBM 1960 Multi Sync colour monitor inc tilt and swivel ....ADD £159
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New AGA Chip Set + blistering 68040 processor, 256,000 colours from 16.6M, scan doubling for flicker free display, 25 MHz, Mouse, Amiga 3.5"/1.76 MB 3.5" drive Plus Cross DOS for transfer of files between Amiga DOS +MS DOS, 2 rear + 2 front 3.5" bays, 1x 5.25" bay, Hard Drive as below, Amiga DOS 3.0 system and utilities, Gold Service Warranty

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120MB HD	2 + 4MB	£1989
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Needs 1MB and Hard Drive

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FOR SPECIALIST ADVICE PHONE JP ON 0727 856005

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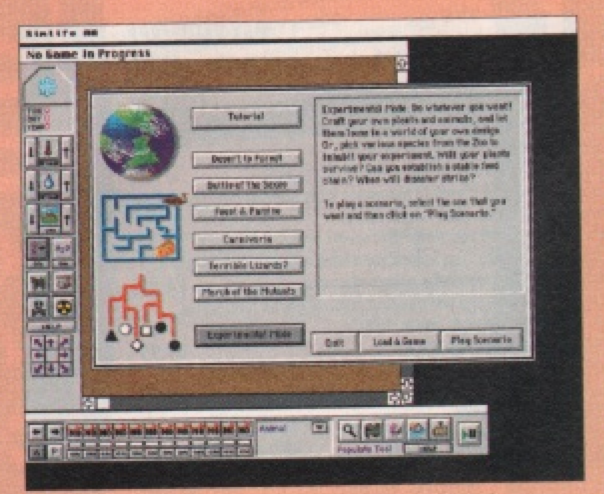
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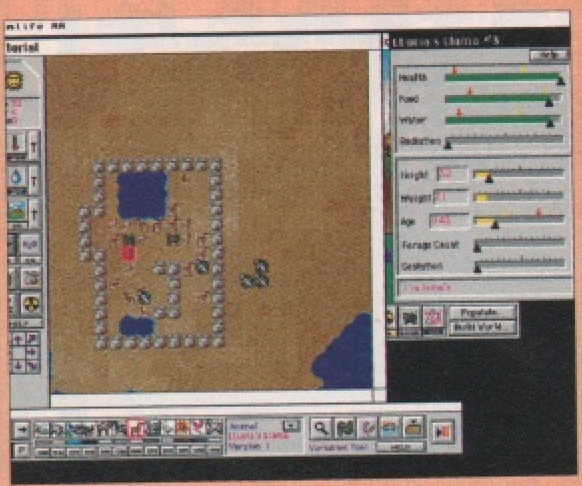
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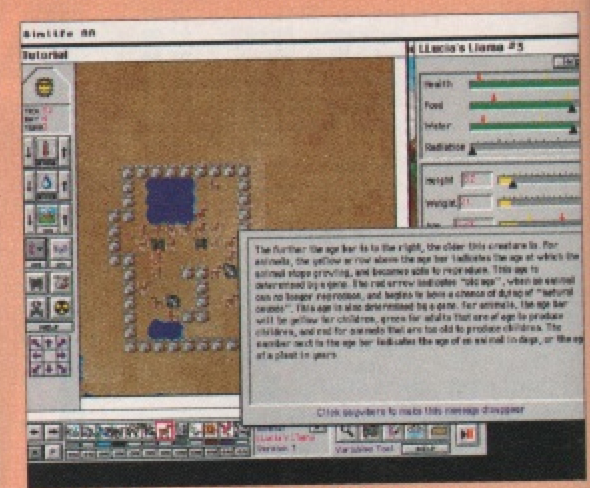
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This is where it all starts. From here, you can select the scenario you want to play, or try out the tutorial.


Each individual animal has this variable panel assigned to them, which shows you how hungry and thirsty they are, and whatever thought happens to be going through their head.


By clicking on option titles, a text window appears telling you what that option does. Beats hunting through a manual!

CU AMIGA SUPER STAR

SIM LIFE

We've always said that Tony Dillon is teh result of centuries of in-breeding. In Maxis' new god sim we can prove it!

You'd be forgiven for thinking that Maxis' latest simulation extravaganza, *Sim Life*, looks almost exactly the same as *Sim Earth*. No-one could blame you either if, once you've caught a glimpse of the manual, you find yourself under the impression that it's even harder to get to grips with than its predecessor – if such a thing can be imagined! You would, however, be wrong on both counts.

To be fair, the two games do have a few common denominators. Like *Sim Earth*, *Sim Life* has no end point – you won't find a Game Over screen in this software. In keeping with their philosophy of creating software toys rather than games, Maxis have aimed to make the package as open-ended as possible – you can literally do whatever you feel like.

That, however, is as far as the similarities go. In *Sim Earth* you had to build the world, but the aim was to keep the planet alive. *Sim Life* turns the whole equation on its head – once the world has been formed, forget about it and concentrate on the life forms. By cleverly evolving the beings you already have, and creating new, perhaps more suitable ones, you have to try and reach your chosen goal.


The start of the tutorial. Panels like this appear frequently, and keep you up to date with what you are doing.

Upon loading, you are greeted by the main menu screen. Everything looks fine and dandy – there are half a dozen preset challenges, from turning a desert into a forest to keeping a species with a limited amount of males evolving, together with a tutorial and an experimentation mode. Remember, *Sim Life* has no specific end point – these scenarios are merely examples of the sort of goal you can set yourself.

GETTING TRICKY

From this point, things get a little complex. Two pages isn't a lot of space to explain something that takes a 200-page manual to detail



Below: The evaluation panel lets you know how well you're doing. By clicking on the individual pictures, you can find out how many creatures you're currently looking after.

THOSE SCENARIOS IN FULL

Sim Life comes with six ready-to-run scenarios, covering a wide spectrum of topics and experiments. They are:

1 Desert To Forest
Your aim here is to take a barren wasteland and turn it into a lush forest. To do so, you need to place loads of the more hardy plants, and hope they evolve. As plants die, they decompose, creating a more nutritious bed for some of the weaker plants.

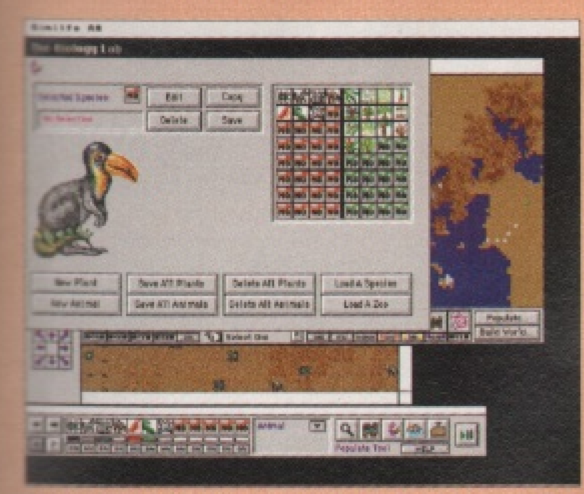
2 Battle Of The Sexes
How would a species with an 80 per cent female population exist? Here's your chance to find out. Remember, most of the babies will be female also, so after a few generations, some interesting mutations will take place.

3 Feast And Famine
You start with a large collection of herbivores and an even larger scattering of young plants. It all starts well, but watch what happens when the food runs out. An excellent lesson in food chain control.

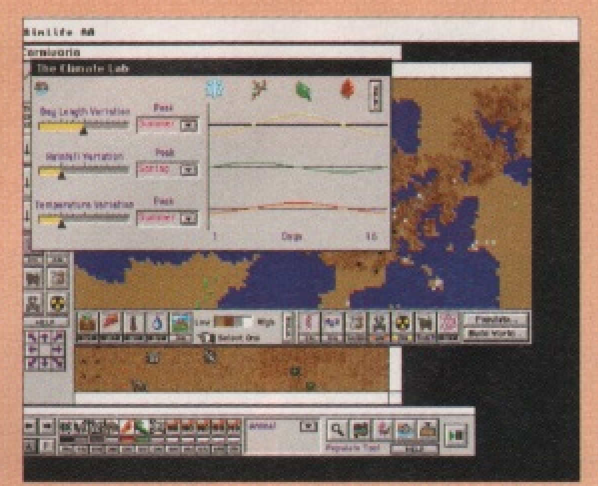
4 Carnivoria
Stepping the previous scenario up a difficulty notch, this scenario adds meat eating predators to the scene. Can you keep a balance?

5 Terrible Lizard
What did happen to the dinosaurs? This experiment might just give you some idea. Were they all wiped out by a comet, or was it nothing more than a total breakdown of the food chain?

6 March Of The Mutants
Create some random genes and throw them out to fend for themselves. Weird and wacky mutants battle for supremacy, or at least survival to the next generation.



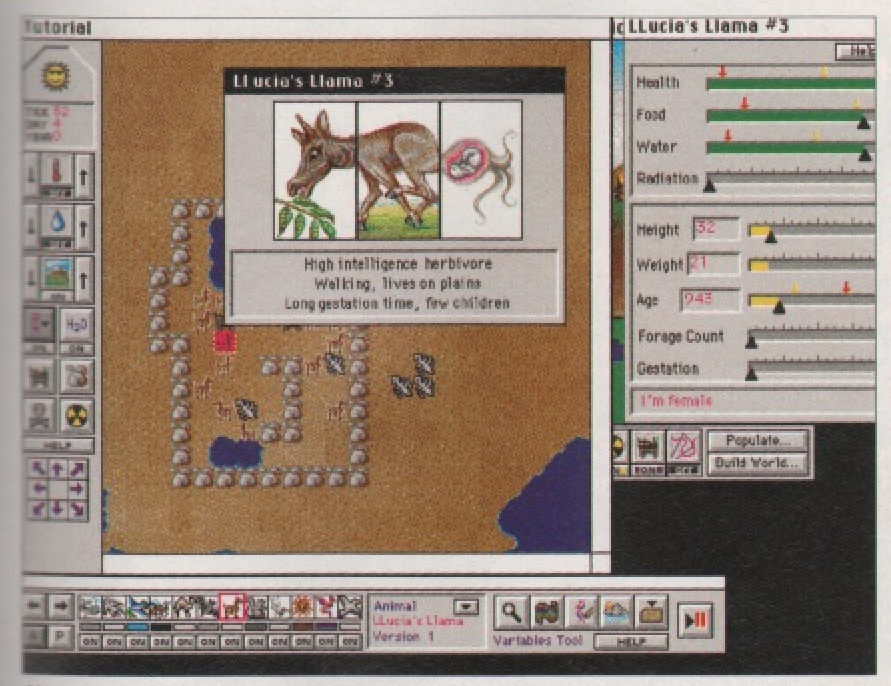
This is where you create the prototypes for your life forms. The easiest way to do things is to copy an existing form, and then tailor it to your needs.



Basic yearly cycles can be changed, and though altering the day length might not seem drastic, you'd be surprised as plants that thrive on light die in the winter.



The easiest way to see how your life forms are getting along is to look at this chart, which shows you how the species are evolving.



Above: Each of the three segments displays a different characteristic.

YOIKS, WHAT A PERSONAL DISASTER!

Sim Life contains a smattering of disasters which can be triggered by the player, or left for the computer to throw in at the moments when you could do without them.

1 Plague
A deadly virus is passed from animal to animal, wiping them out as it goes.

2 STD
A simple STD.

3 Heat Wave
There's nothing like global warming to mess up your plantlife. A quick heat wave increases global temperature dramatically.

4 Cold Wave
Like a heat wave, only colder.

5 Flood
A flood is great for the sea-dwelling creatures of your world, but a curse for any plantlife that lies in your coastal regions.

6 Drought
With a drought on, no rain will fall, and your plantlife will suffer.

7 Fire
This can only happen if there are plants in your ecosystem.

8 Comet
The old Maxis favourite, and the easiest way to wipe the slate clean and start again.

9 Teleport
Randomly re-arranges the plants and animals in your world.

10 Civilisation
This places land developers on the globe and lets them run wild.

adequately, but I'll give it a go. *Sim Life* is based on an extensive set of biological rules concerning evolution and survival. Each lifeform is broken down into dozens of categories, from the basic prototype genome, which dictates things like whether the animal can fly, how much energy is taken up by foraging for food and how many babies it has in a litter, to individual breakdowns which cover the sex of the animal, its various tolerance levels to hunger and thirst and the sorts of things it likes to eat.

You don't just create animals either. You are also responsible for the evolution of plantlife, controlling such factors as how their seeds are spread, and the sorts of shrub they evolve into. Every creature is based on a prototype gene, but their surroundings and habitat dictate how each successive generation will mutate. It's this toying with the mutation that makes it so enjoyable.

Thankfully, you're not just thrown in at the deep end. A full on-screen tutorial takes you through the basics of the game, from building a world to understanding the reasons behind certain animal behaviour. A box will appear on screen and ask you to do something, such as select an option or create a certain plant. Once you have done that, the tutorial steps forward to the next stage, all the time keeping you fully informed of what you have done and the effects your actions have had. This makes getting into the game far easier.

The game is windows-based, with information panels summoned via a menu bar at the top of the screen. Being ported directly from the Apple Mac, the mouse control is highly intuitive; pop-up menus and help panels are displayed by clicking on the appropriate icons, and it looks a treat on the A4000 and 1200. Every control panel and display window is in a completely different box, so the screen can be rearranged to your heart's content, which is just as well as it can get very cluttered at times. There are dozens of information panels to work through, and it isn't advisable to have more than three on screen at once, if you can help it.

DIFFERENT WORLDS

There are two different versions of this package being released. The first to hit the streets will be the A4000/A1200 version, which is the one reviewed here. Due to speed and memory, the largest of the four types of world is unavailable, but that is the only restriction. The A500/600/500+ version will be released around the same time, and we're assured that the drop in speed will be minimal, and you will only be able to create the smaller two worlds. Apart from that, the game should be identical, so the mark given stands for that version too.

Left: It might look complicated, but this little diagram shows you at a glance exactly what your world is comprised of.

GOING DOWN

If reading this review has made you think of a couple of things you would like to do, chances are you can. Designer Ken Karakotsios has made a superb job of the design, giving the user total freedom.

Sim Life does everything it claims to do, and although it's extremely technical, it never baffles the user with jargon. Its only real downfall is, of course, the fact that only a small percentage of users will fully appreciate what it can do. CU

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RELEASE DATE:	JUNE
GENRE:	BIOLOGY SIM
TEAM:	AMBERSOFT
CONTROLS:	MOUSE
NUMBER OF DISKS:	2
HARD DISK INSTALLABLE:	YES
MEMORY:	1Mb

GRAPHICS	61%
SOUND	52%
LASTABILITY	98%
EASE OF USE	83%

"Superbly designed, flawlessly executed, but a bit limited in commerciality."

OVERALL 93%

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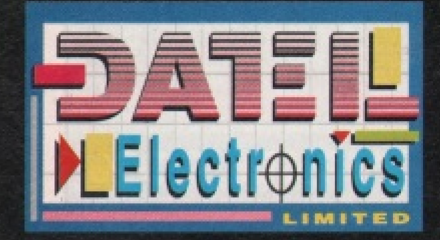
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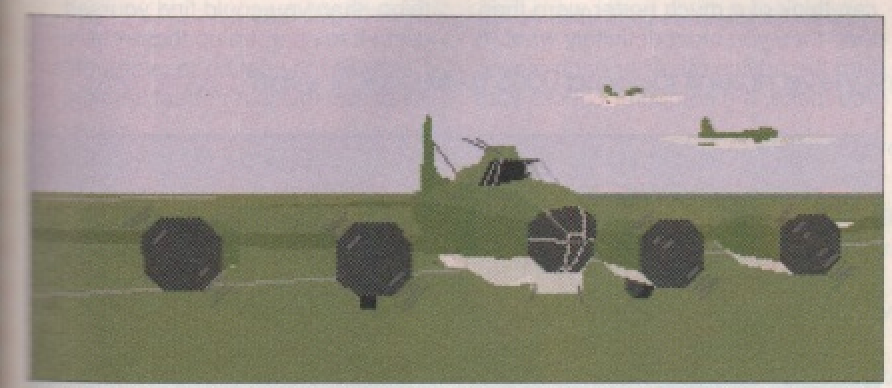
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B-17 FLYING FORTRESS

Tony Horgan considers himself a high flyer, so when B-17 came into the office he was the obvious person to take a closer look.



Customise your drab old bomber with a bit of fancy artwork – and why not give it a name while you're at it?


Formation flight is harder than it looks – fortunately, you can tell your co-pilot to keep an eye on the controls, while you put your feet up with a flask of tea.

The year: 1943. The place: a USAF base in Southern England. The Allies are gradually nosing ahead in the fight against the Nazis, but it's not over yet. American B-17 bombers are playing a vital role in the struggle, and you've just been assigned the job of Commander of the local B-17 team. It takes a crew of 10 to operate the plane, and it's up to you to make sure everyone does their bit.

AIRBORNE FREE

Before you get airborne, you need to select your plane. You can either take one 'off the shelf', or have a brand new, personalised one. Name your plane, spruce it up with some snazzy nose artwork, and it's off for the mission brief. The briefing session is made more tolerable with some grainy black and white reconnaissance films and maps. Once you think you've swallowed that lot, you get a chance to customise the game to suit your skill level. There's an overall difficulty level, and all kinds of other parameters can be independently tweaked, from the levels of flak, to whether or not the bombs are liable to malfunction.

So far, it's all going fine, but the first irritations start when you find yourself at the controls of the beast. Instead of lining you up for take-off, the computer makes you go through an exceedingly tedious few minutes as you taxi onto the runway. You can use the 'time-skip' function to minimise the boredom, but then you'll probably miss the take-off itself, which is about the most exciting part of the game, until you get to your target.

Once airborne, it's best to delegate the flying duties to your co-pilot, otherwise you run the risk of colliding with your fellow airmen in the three-plane formation. This means that you're free to admire the beautiful green English countryside, which has been completely stripped of hills, towns, farms, and any other distinguishing features that may have helped pass the time.

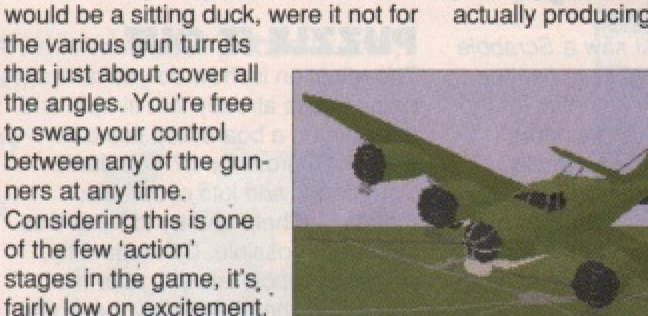
WE'RE GUNNER DIE!

Using the time skip feature again, you can jump forward to your first encounter with the enemy. This is usually a gun battle with a small group of German fighter planes. The B-17 would be a sitting duck, were it not for the various gun turrets that just about cover all the angles. You're free to swap your control between any of the gunners at any time. Considering this is one of the few 'action' stages in the game, it's fairly low on excitement. Most of the time, the bandits are no more than single pixels wobbling around in the sky, out of the range of your guns. When they do come up close, they usually just shoot past in an instant. The controls are no help either – not only do they react with a very noticeable delay, but the guns have an irritating habit of moving in big steps. On top of that, the game accesses the disk intermittently throughout the gun battles. Accurate marksmanship goes out of the window – realism has taken precedence over gameplay once again.

It's obvious that Microprose have put a lot of time and effort into *B-17*. Some of the pre-flight screens are excellent, and before you get into the main part of the game, there are plenty of details to keep the enthusiast interested. What a shame, then, that they've come up with a very slow and uneventful flight sim. All the bells and whistles will never make up for the shortfalls in the heart of the game.

Even if a few buildings or hills had been added to the landscapes, it would only make things slower. Concessions to realism mean that you can't even try out a bit of trick flying when you get bored – well, you can try, but you'll find it's a one-way ticket to death.

Flight sims can be fast, fun, and even exciting. Unfortunately, *B-17* is none of the above. It's all well and good going for factual accuracy, but you've got to remember that you're actually producing a game. CU



Neglect your duties and it can all go horribly wrong. Remember to pack your parachute!

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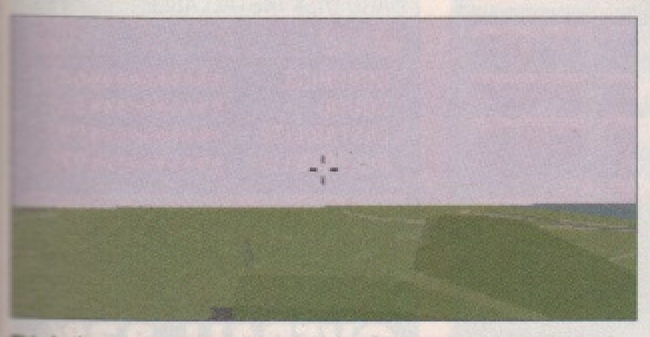
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RELEASE DATE: APRIL
GENRE: FLIGHT SIMULATION
TEAM: IN HOUSE
CONTROLS: M/K/J
NUMBER OF DISKS: 3
NUMBER OF PLAYERS: 1
HARD DISK INSTALLABLE: YES
MEMORY: 1Mb

GRAPHICS 61%
SOUND 56%
LASTABILITY 74%
PLAYABILITY 65%

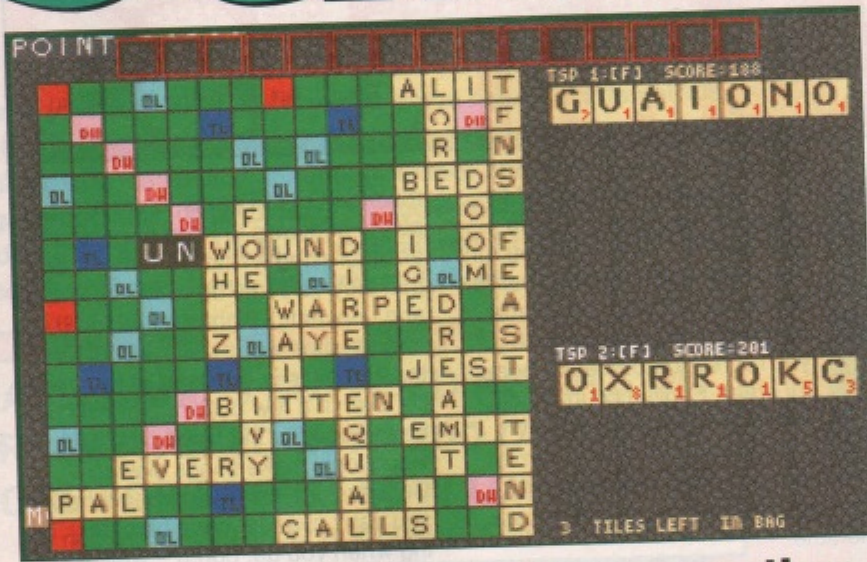
A disappointingly uneventful flight sim, sadly lacking in excitement.

OVERALL 68%


This is the most common view of the bandits – mere dots on the horizon. Be prepared though, as they launch sudden attacks.


Make sure that you don't end up taking out your comrades in the heat of the battle.

SCRABBLE



The action's really hotting up now, as the bag empties and the number of available spaces reduces dramatically.

It's been around in one form or another forever it seems, but now everyone's favourite word game is set to hit the Amiga, as Tony Dillon discovers.

When I first saw a *Scrabble* computer game (written by Leisure Genius for the Spectrum almost 10 years ago!), I remember thinking what a totally pointless conversion it was. Back then, the tools to create the sort of Artificial Intelligence and the storage capacity necessary for all the possible words just weren't available, and so you ended up with a very basic version of the game that was only slightly better than playing alone.

Now we reach 1993. The base level Amiga has at least 1Mb of memory and there are chess programs that can compete with Grand Masters. US Gold have brought forward *Scrabble* once more and this time I can honestly say that it gives me a real run for my money.

Everyone knows how to play *Scrabble*: intercrossing words are laid down on a grid rather like a crossword with a score calculated from the letters that make up the words and any special tiles the letters might be placed on. Each player has seven letter tiles, and each time they use one, it is replaced with a random letter. Play continues until no more words can be made and there are no more tiles to be drawn from the bag. Whoever has the highest score wins. And that's about it.

PUZZLE IT OUT

The question is, how do you take a game that is already that simple and effective on a board and use a computer to improve on it? You don't. You merely add lots of options, menus and help and try to keep it as faithful as possible. Consequently, Amiga *Scrabble* lets you alter the colours on the board, play the whole thing in black and white with or without music, play with up to three other people or a computer opponent with 16 different skill levels (the highest of which uses a lot of strategy and tries to create nine letter words!) and use help if you like.

Help? Yes, to aid you in your quest for *Scrabble* superstardom, you can get a little help from the computer. This comes in two forms – hints and advice.

Hints can be called before you make your move, and when selected the computer looks at your tile and the board and comes up with every single permutation it can, which you can then browse through. Advice is far more aggravating, though.

If you find the idea of someone whispering in your ear things like 'Oh no, you didn't want to do that' or 'I can think of a much better word than that' then you most definitely want to turn the advice off. After each move you make, the computer checks your letters and then tells you how many higher scoring words you could have made. This might not sound too bad, but it really gets up your nose when you have thought for hours, placed a six letter word scoring you 50 points, and the computer tells you that there are 72 more profitable words you could have placed! Aaargh!

All things considered though, *Scrabble* is a superb conversion of the original. If you like the game, then of course you'll want to get it. Otherwise, well, if words are your thing, then you could find yourself using it to sharpen up those skills. *Scrabble* may not be to everyone's liking, but this is a perfect version. CU

NO CHEATS

In the old days, if you entered a word it didn't recognise, the *Scrabble* program would ask you to confirm it, taking your answer in good faith. For the sake of looking really good on the high score table, I tried to play this new version the same way, only to find that you can no longer enter words the program doesn't know. Mind you, with a vocabulary of over 130,000 words, you'd be hard pressed to find one!

Above: Yes, yes, there's no need to rub it in. After each move, the program can tell you how many better words you could have used.

Left: This menu screen lets you choose the type of board and the type of game you play.



Right: Words are formed in the bar at the top of the screen, and then dragged with the mouse to the position you want them.

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RELEASE DATE:	APRIL
GENRE:	BOARD GAME
TEAM:	ARC
CONTROLS:	MOUSE
NUMBER OF DISKS:	1
NUMBER OF PLAYERS:	3
HARD DISK INSTALLABLE:	YES
MEMORY:	1Mb

GRAPHICS	64%
SOUND	53%
LASTABILITY	99%
PLAYABILITY	97%

'If you like Scrabble, then you'll love this conversion.'

OVERALL 83%

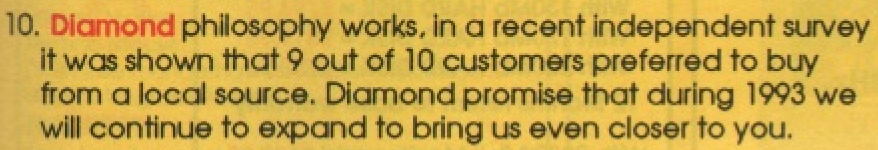
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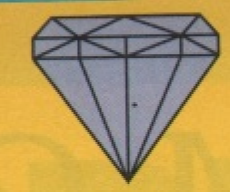


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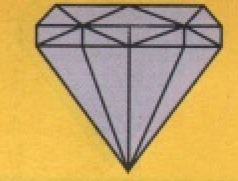






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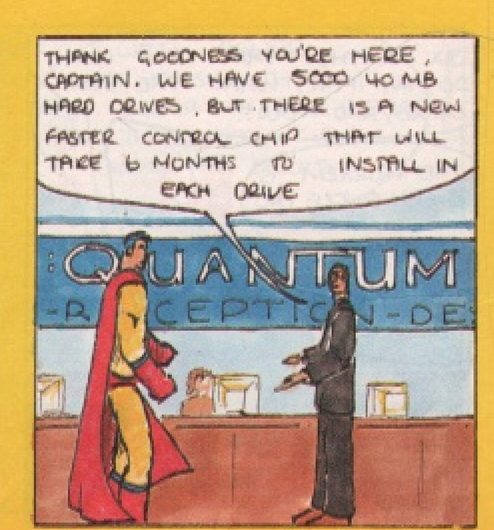
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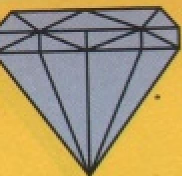




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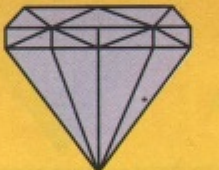
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PITFIGHTER

HIT SQUAD OUT NOW £7.99



Probably the best thing about *Pitfighter* is the digitised screens at the start of the game showing the three player characters training. They're actually quite close to the original ones found on the coin-op – in fact, this is a fairly decent conversion of Tengen's arcade machine. Unfortunately, that praise isn't as high as it sounds; the arcade game was only pretty average to begin with.

As beat 'em ups go, the plot for this one is dirtier than usual. The basic premise is that you're involved in some illegal backstreet prizefighting. There are no rules, no rounds and the last one left standing wins. You get to choose from three characters, Ty, Kato and Buzz who come from different fighting backgrounds – pro-wrestling, martial arts and kickboxing. Each of them has his own set of moves which include a special one that's applicable to their 'sport', such as jumping spinning kicks or body slams.

The arcade action is fast and furious, with lots of wicked objects to pick up and throw at your opponents, including knives, shurikens and even motorbikes! The winning fighter gets paid a purse which contains a bonus for how brutally he fought, so it's no-holds-barred action all the way.

As I said, the conversion has been carried out pretty well and the digitised characters look quite realistic. Unfortunately, too much attention has been paid to the way they look when stationary, as they break down completely when things move. Too few frames of animation have been used for them and, as a result, everyone tends to jump around the screen in a most unconvincing manner. This, coupled with the fact that you can actually fight on top of some of the background audience, makes the whole thing very unconvincing. As a full-price game I would have panned the whole thing, but as a budget title, it's probably got enough to deserve a serious look if not an actual purchase.

68%

TERMINATOR 2

HIT SQUAD OUT NOW £7.99

If you've seen the film by now (and who hasn't?) then you'll have a pretty good idea what this game is all about. It mirrors many of the main scenes in Arnie's smash blockbuster, but inevitably fails to live up to the promise of its cinematic namesake.

The player controls Arnie's character, the T-800, sent back in time to protect John Connor, a soon-to-be rebel leader, from the murderous attentions of a more advanced terminator robot, the T-1000. This new breed of assassin has a nifty shape-changing ability, which means he can turn into liquid metal whenever he's in trouble.

The first level sees the T-800 facing up to his enemy in an arcade that the young John Connor frequents. It's basically a horizontally scrolling beat 'em up between the two characters. The available moves on this screen are fairly limited and the joystick controls are pretty unresponsive. If you manage to survive this you're plonked on the back of a Harley along with John and have to outrun the T-1000 in a vertically scrolling race.

Later come various puzzle sub-games, such as the piece-Arnie's-face-back-together using sliding blocks, more vertically scrolling chases and, finally, the scene in the metal works which is an exact repetition of the first screen. It's a very mixed bag which fails to gel in any way whatsoever. The animation is of very poor quality, the sound effects are minimal and the playability is atrocious. You should avoid this game at all costs.



34%

VFM



Money too tight to mention? Forgotten what a crisp new tenner actually looks like? Or even an old one come to that? Then fear no more – your worries are over as the CU Amiga team of experts are here to select the best budget buys from the current crop of cut-price contenders. Budding Scrooges read on...

MOONSTONE

MINDSCAPE OUT NOW £14.99

This game is prefaced by one of the most stirring animated intros I've seen. It may not be the best animation or sound ever, but their combination into one cohesive whole makes for a blood-curdling intro.



Set in ancient times when men were men and women were... well, women, it tells the tale of 'The Quest for the Moonstones'. You and up to three friends play knights on this quest, travelling the lands and testing themselves and each other in mortal combat with bands of hairy monsters. This is played out over a detailed map containing various cities to explore and monster's lairs to attack.

Movement is controlled on this main map and you can travel as far as the terrain that you're on allows. If you stop at one of the cities you can visit a tavern to gamble for more cash to buy better equipment, visit a Mystic to be healed or have your stats increased. All very derivative stuff you might say, and I would agree. But that's where *Moonstone* begins to depart from the norm. When you attack a lair, or if you're attacked by one of the other knights, the viewpoint switches to a horizontally scrolling beat 'em up. It's here that the game shows its true colours, for it's one of the bloodiest games on the Amiga – literally. Every blow is depicted in full-colour gore (mainly red) with decapitations accompanied by suitable squelching sound effects. (Don't worry if you're a bit squeamish as you can turn the gore off but, frankly, doing so takes away the game's appeal.) The animation in these sequences is absolutely superb and the backdrops over which you fight are equally detailed.

It's so gripping to try and find tactics to beat the other knights and monsters, as each requires subtly different attacking sequences. For instance, the mudmen rise up out the ground and try to drag you down with them. All it takes is one good blow and you're history, so you have to move quickly around the screen and use your longest range of sword thrust to keep them at bay. With other knights it's best to start at a distance and throw a load of knives to weaken them and then get in close for a bit of good old fashioned hacking. Fortunately, there aren't that many types of monsters to beat.

This combination of strategy and joystick flailing action makes *Moonstone* a winner. It may lack long-term appeal, but it's great fun while it lasts.



»



SMASH TV

HIT SQUAD OUT NOW £7.99

If you like your games coated in an extremely violent veneer, then *Smash TV* should be right up your street. Mix shoot 'em up action with a team of baseball-wielding thugs and you've got a good idea about what to expect here. An excellent conversion of the Williams' coin-op, the action comes thick and fast as you take control of a contestant in an ultra-violent futuristic game show. The aim is to collect as many different prizes as possible (such as videos, toasters and microwaves) while avoiding an army of mutant psychos who are after the greatest prize of all... your life!

The graphics aren't really up to much – you'll be disappointed if you're expecting the same quality as those of the coin-op – and the in-game sound effects are decidedly tinny, but for a mindless blast this really can't be beaten. Each room is packed full of prizes, mortars, explosives, laser emplacements and hidden bombs, and before you know it the screen is flooded with the aforementioned thugs who won't rest until they've battered you into a mushy pulp. Get boxed in by this lot and you'll be hammered until you fall to the ground unconscious. Armed with a paltry machine gun to begin with, there are various power-ups scattered around each room which can transform your weapon into a slice'n'dice death machine. Be careful, though, as there are also explosives scattered around each level and if you run into one of these your brains get splattered all over the screen. Once you've completed a number of such screens it's onto a confrontation with one of the game's big bosses. Hours of fun for all the family (especially if they're psychotic killers).

79%

PIRATES!

KIXX XL OUT NOW £12.99

Pirates! was the first game that I had nightmares about. When it first came out I spent hours glued to it, only to find the sounds of lapping waves and whooshing winds dominating my sleep, too. This game is seriously addictive.

You play the part of a young apprentice captain sailing the Spanish Main in the 17th century. The aim of the game is fairly simply – make enough money to die a rich man and rise through the ranks of social and nautical class. Whilst this may sound easy, in practice it's bloody difficult. Fortunately, there are various ways to achieve these goals, including visiting a port's Governor to be assigned various tasks or to take a Letter of Marque, whilst surreptitiously trying to chat up his daughter! As any good pirate knows, fame and fortune doesn't come easy.

The main action takes place on a map depicting your ship and the islands of the Main. It's here that the sailing is done and the battles fought. When you encounter another vessel and attack it you're given a close-up top-down view of the two ships. It's then a matter of who has the better ship and sailing skills to get in the right position to launch a broadside before the enemy can respond. These battles are not controlled by any stats and require you to master the mouse and read the winds if you want to come out the victor.



The mental strategy is fairly demanding too, as you have to juggle loads of factors if you want to keep your crew happy. These include the number of battles you've won, how much gold there is in the hold and the amount of food available. Remember, a happy crew is not a mutinous one!

If I had any idea what life on the Spanish Main was like, I might be in a position to say that *Pirates!* is an excellent simulation. As I don't, all I can say is that it's an excellent strategy game. My only grumble is that some of the animations are looking a little dated now, but that by no means detracts from the gameplay. If you buy it, you should be prepared for some long nights.

89%

LEGEND

MINDSCAPE OUT NOW £14.99

There are few decent RPGs which use an isometric viewpoint to depict the action. The only other one that I can think of is Gremlin's *Heroquest*. The main reason for this is that it usually detracts from the more strategy-based elements of the game. Fortunately, *Legend* doesn't fall into that trap.

The player takes control of four characters who are on a quest (aren't they always?) to rid the land of Trazere from the hordes of chaos. People are being transformed into hideous creatures and are attacking the rest of the population, and it's up to you to find a cure for this evil. What this boils down to is the usual dungeon bash, combined with some strategy elements as you decide where to place the cash that you've won to pay for the country's defences.

The four party members that you've got to do this job are a varied bunch – there's the Fighter, the Bard, the Assassin and, best of all, the Runemaster. It's this last character that transforms *Legend* from just another RPG into something really special. The magic system involves mixing various runes and elements into spells. The manual is deliberately vague on what combinations to use and invites the player to try various options out for himself. This is quite exciting as you sometimes don't know what the spell does until you use it in combat (though you are given some good clues when it's mixed). And when you get into battle, either in the dungeon or on one of the roads leading to the towns, *Legend* really begins to shine. Each character, although tiny, is well animated and the action is graphically portrayed. This is quite a bonus as anyone who's played Heroquest can tell you. When your Runemaster casts a spell you actually see it fizz across the screen and explode on the chest of an enemy. This action takes place in real time, so some magical preparation is needed before you enter into battle. Fortunately, the fighters tend to look after themselves while you're left to control the Runemaster's spellcasting.

Dotted around the dungeons are various magical items which will increase your party's strength. There's also pots of money that can be used to buy more weapons and spells or help fortify the towns against evil. The cash comes at a price though – exploration is tough as there are many puzzles to solve.

The combination of realistic combat, exciting exploration and strategic thinking make *Legend* excellent fun. It's one of those games that you start playing at six o'clock and then find yourself at two o'clock in the morning wondering where the time went. Buy it now.

89%

WWF

HIT SQUAD OUT NOW £9.99



Wrestling's come a long way since the days of *World of Sport* and Saturday afternoon tag matches televised live from Doncaster town hall or Ilkley swimming baths. The beer bellies and swimming trunks of our home grown wonders (and I often 'wondered' about Big Daddy!) have been replaced by the rippling muscles and Elvis-style showmanship of the USA's World Wrestling Federation. The action's still as crap as ever, but it's entertaining crap.

Unfortunately, the same cannot be said about the computer game. Able to choose from Hulk Hogan, British Bulldog or The Ultimate Warrior, opponents include the likes of Mr. Perfect, Sgt. Slaughter, the Mounty, Warlord and Million Dollar Man. During a series of five-minute bouts, the aim is to simply reduce an opponent's energy bar by knocking them about the ring. Sooner or later, you end up in a clinch (of the non-romantic, fist-in-your-face variety), a stand-off where the only way out is to waggle your joystick faster than your opponent. Do this successfully and you'll be able to pick him up and hurl him across the ring. And there's action outside the ropes, too – there's always a handy chair to pick up and smack over someone's head.

Sadly, that's about all the gameplay there is. Billed as a two-player game, this is only possible in practice mode and even then your opponent will always be Mr. Perfect. Not bad fun while it lasts, but you'll soon tire of this drab and unimaginative license.

48%

ROBOCOP 2

HIT SQUAD OUT NOW £7.99

Ol' tinhead returns in another orgy of ultra-violence in future Detroit. Following on from the incredibly successful first game (which stayed in the charts for more than a year after its release), *Robocop 2* is a fast and frantic platform shoot 'em up. Developed by Special FX, the game boasts seven levels: three platform shoot 'em ups, two puzzle games and a couple of hostage shoot-outs. The shoot 'em up sections typically involve the player in collecting canisters of the addictive drug, Nuke, before they fall into the hands of criminals, and freeing a number of hostages. Blocking your progress is an army of heavily armed villains as well as a number of platform obstacles. Power-ups are in plentiful supply and include rapid fire, scatter shot and three-way fire amongst others. There's also a time limit, so if you fail to reach the end of the stage in time, you're placed back at the start of the level. Puzzle sections involve Robocop in a race against time to regain his memory. This is done by collecting Robo's memory chips on a graphic representation of a circuit board. Rogue chips block a player's progress and you can't double back or pass through the same location twice. There are four such sections to get through, each one harder than the last. It works well but can be a little repetitive. The shooting gallery stages involve calibrating Robo's gunsights by shooting criminals as they appear at windows. It's very similar to sequences in the first game, although it's hard to distinguish the shapes at windows and the controls are sluggish. The more targets you hit, the less shots you'll need to polish off the bad guys in subsequent levels.

It's all entertaining stuff, although the Robocop sprite is dreadful and has developed a mincing walk which makes him look more like John Inman than the ultimate law enforcer. The final confrontation with the new, improved Cain is a bit of an anti-climax, too, as there's no great difficulty involved in blasting him to pieces – it just takes an inordinately long time! But *Robocop 2* is still an addictive blast and there's certainly a lot going on. The mishmash of gaming styles can be a little off-putting, but if you can live with that you'll find this is a lot of fun.

76%



RBI BASEBALL 2

HIT SQUAD OUT NOW £7.99



All the thrills and spills of Major League baseball can be yours with this fun but flawed bat'n'ball game. Featuring all 26 teams from the Majors, most of the rules of the real game have been included and each player has their own particular strengths and weaknesses based on actual pro stats.

It's not merely a question of standing on the home plate and spraying the ball in all directions, though. You have to carefully examine the strengths and weaknesses of all your players and make timely substitutions. This is particularly important in the case of pitchers. Starting pitchers have more stamina than relief pitchers, but a careful eye must be kept on the speed at which they throw the ball. As soon as they slow up, call on the subs.

The game offers a choice of playing in the minor or major leagues. It's best starting off in the minors to get some much needed batting practice. It's quite hard to judge pitches at first and the majors will hit you with so many fastballs, you won't know what day of the week it is. The pitcher has a number of throws available such as a slowball, fastball, curveball or normal speed pitch and can be made to jig from side to side to accentuate the ball's angle. Batting is merely a question of positioning your player within the batter's box and timing the swing of the bat to meet the incoming balls. It's a bit of a hit-and-miss affair to begin with and things don't improve much, even after a couple of hours of practice! There's little indication where the ball will go, or when, so it's really pot luck if you manage to hit the ball for a home run.

The animation and graphics in *RBI* are excellent. It's also very fast. The first time you manage to collect a ball, throw it to a baseman and tag someone out as they attempt to slide into base gives a real sense of achievement. Unfortunately, there's no league system so matches are only on a friendly basis. Some of the excitement of the real thing is lost as a result – a series of friendlies becomes mildly irritating when you could be marching up the league in pursuit of a pennant, the play-offs and a place in the World Series. Another quibble is the deceptive angle of the ball once it's been hit into the air. It's almost impossible to second guess the direction it's going to travel in until it starts to drop and by then the opposing team are halfway round the bases.

Originally released on the NES, the Amiga version of *RBI Baseball* is just as good as its console cousin, but that's not saying a great deal. It's fun, exciting, but ultimately frustrating.

72%

»

STORM MASTER

GAMES WORTH PLAYING OUT NOW £12.99

If you're a fan of strategy sims, this game shouldn't be missed. If you're not then it may turn you into a lifetime convert to the genre. *Storm Master* combines an unusual scenario, some excellent graphics and an easy-to-learn control system into an absorbing game.

The player is cast as the new ruler of the wind-swept realm of Eolia, which is in the middle of a war with its neighbour Sharkaania. You rule with the aid of nine councillors who must be kept happy if they're to remain co-operative. Each has a different role, some more important than others. The Ecclesiast, for instance, can predict and sometimes control the fierce winds and thus commands much power and respect, whilst the Advisor simply records the state of the Kingdom.

The main aim is to destroy Sharkaania's seven cities, whilst preventing them from destroying yours. To achieve this goal you'll need loads of flying ships and lots of men. It's about now that you realise the size of the task that lies ahead and the attention to detail that has gone into the game.

To build one of the four types of air ships you'll need raw materials. These come from the mills, which have to be constructed in specific sites to produce the relevant materials. If the mills are near the forests then you'll get a lot of planks and if they're near the plains you'll get wool to weave the sails with. Every decision that's made in *Storm Master* has a long-term strategic consequence, so you'll have to think carefully before clicking.

One of the best sequences comes with the construction of the air ships. You not only have to choose a ship type, from the sleek and fast Ikaar to the bulky Noowe, but also how to arm and propel them. This bit is quite tricky, because if you don't get the lifting weight right, when it's tested it'll crash spectacularly with complete loss of life (and all the cash that went into building it).

Once battle commences you can choose to take control of the ships in a 3D combat sequence using crossbows and catapults. Normally this part of a strategy game is very weak, but here the action is thick and fast.

The attention to detail and overall playability are superb. The game looks good and demands a lot of deep thinking if you're to succeed. This one deserves a firm recommendation.





KNIGHTMARE

MINDSCAPE OUT NOW £14.99



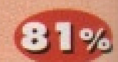
This one takes its name from the tea-time T.V. show which features a bunch of hapless kids transported into a computer generated dungeon. They are guided on their various quests by Treguard, the Dungeon Master. Essentially the whole thing is like some cross between a game of *Laser Quest* and a Virtual Reality trip – only not so good. But if you're hoping for a direct conversion of that show then you're in for some disappointment, which is good news for those of us who hate the thing!

The game superficially resembles the old *Dungeon Master*-style of RPGs, with you taking control of four disparate characters and viewing the 3D world from the first-person perspective. Here their aim is to complete four quests (as usual read 'dungeons' for 'quests') in the search for four magical objects which are needed to do battle with the evil Lord Fear. However, this resemblance is purely superficial as the game plays much more like Tony Crowther's earlier venture, *Captive*.

As in that game, all four characters' stats can be viewed individually or in a group; a feature that's extremely useful when one of them is injured or weighed down. The graphics too are very similar with some nice individual touches, like the plant pots strewn around. Unfortunately, this is one area where the game could have been improved as the limited colours tend to make some text very difficult to read, especially on T.V.s.

The quests drop you straight into the action so there's no time to get used to your team before they have to start fighting the various monsters. Speaking of which, these villains are, for once, semi-intelligent and will not forget about you if you close a door on them. The monsters are more likely to nip round the nearest corner and wait to pounce once you come out of the room. Also, the puzzles are quite bizarre, perhaps reflecting Tony's strange sense of humour.

Having said all that, I quite liked *Knightmare*. It's very difficult but that's one of its credits. If you fork out the cash it's nice to know that you'll not only enjoy playing it but will still be doing so weeks later. Good fun!



METAL MUTANT

GAMES WORTH PLAYING OUT NOW £9.99



Far into the future, when humanity gets tired of doing all that boring paperwork AROD7 is invented to take care of it. Unfortunately, it's a learning computer and soon decides that it's humanity that's causing all the problems. So, using a revolutionary bio-mechanical hit squad it begins to decimate the human population. Before it's too late a rebel alliance is born and in a last-ditch attempt to save us all the leader pops his brain into a transformer-type robot and seeks out AROD7. Yes, it's another excuse for a horizontally scrolling beat 'em up.



You take control of the rebel robot, which can transform itself into three different beasts – an android, a dinosaur and a tank – each of which has completely different abilities. This means that you get to choose from a fearsome array of combat and shooting moves. The only trouble is, they're all complete rubbish.

This game is a misjudged mix of shoot/beat 'em up action and strategy. The strategy comes in the form of choosing what robot to use to destroy the current screen's nasties. For instance, only the dinosaur's fiery breath can destroy the swarms of alien bees, whilst the tank's guns are the best weapon for some beasts.

The main sprite is fairly big and reasonably well drawn but, the price you pay for this is losing all speed and playability. The joystick response is incredibly slow and requires pixel perfect placement to execute one of the moves. Altogether, this is a game to miss.

32%

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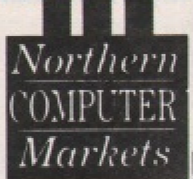
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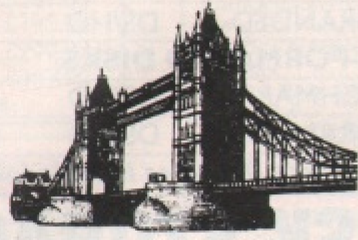
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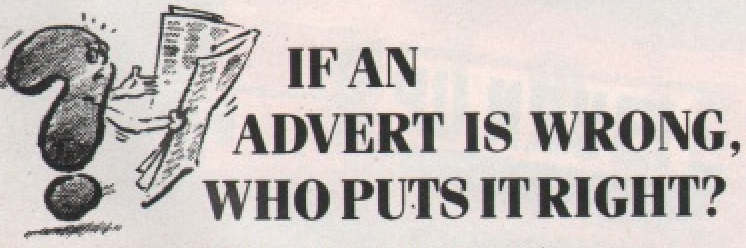
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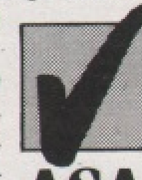


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SMALL TiPS

For tips that are hotter than a double strength vindaloo look no further than CU Amiga. Handle this page with care!!

ROME

We've already provided you with some general hints on playing Millennium's isometric puzzler. If you still can't figure it out and would like some specific action to take place, including winning the game, try these codes out for size. Hold down the ALT key and type in the numbers, when you release it the effect described will begin:

HERCULANEUM

764 Start thunder and lightning
826 Start volcano exploding
293 Give host some money
119 Give host toga
275 Force ship to dock
472 Win level

ROME 1

682 Win level
792 Add to Hector's cash
092 Pretend Hector's just come successfully from here
442 Evening
443 Night
624 Start a dice game
635 Start a play
426 Start a slave auction
857 Emperor's speech
608 Buy a slave girl
719 Buy a slave
702 Start games
299 Put Hector inside Palace

BRITAIN

232 Rainfall
233 Fine
234 Night
235 Day
868 Monitor Sentinel's strategies
490 Win level

ROME 2

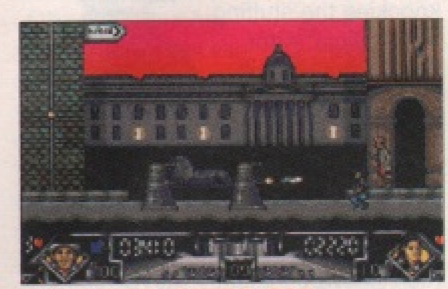
362 Win level
102 Start registration of candidates
103 Auto-register Hector as a candidate
114 Buy a slave
305 Start games
436 Start election (Hector is candidate)
437 Start election (Hector isn't candidate)
410 Pretend you've borrowed money
792 Add to Hector's cash
442 Evening
443 Night
551 Own a slave girl

EGYPT

691 Enable map blips for Sentinels
661 Monitor Sentinel's strategies
809 Win level

ROME 3

624 Win level
403 Night
434 Buy a slave
305 Start games
210 Start games
792 Add to Hector's cash



DALEK ATTACK

May must be the month for level codes. Type one of these in whilst playing (include spaces) to time warp the Doctor to the next level:

From London to Paris
Day Of Reckoning

From Paris to New York
The Slyther

From New York to Tokyo
Tricolour Coffee Shop

From Tokyo to Skaro
D5 Gamma Z Alpha

HARLEQUIN

Many thanks to Tom Wörner from Galway for this ace cheat to an excellent platform romp. As far as we're aware this is the first time that anyone's spotted this one.

Guide the Harlequin to the jig-saw puzzle section whilst carrying the space hopper. When you fall from the kite select the space hopper and jump up to the lower of the two platforms above you. Disengage the space hopper and jump across to the other platform, then leap over the low wall. When you land, keep on firing to see where the ground is and move across to the point where you're walking on air. Run left until you can go no further then jump up and you'll hit an invisible warp. You'll be prompted to insert disk one and now you can sit back and watch the end sequence.

HISTORYLINE 1914-1918

Here's all the level codes for single player mode:

1. Pulse
2. Goose
3. Sport
4. Bimbo
5. Tempo
6. Baron
7. Bumm
8. Level
9. Toxin
10. Princ
11. Clean
12. Xenon
13. Signs
14. House
15. Sigma
16. Seven
17. Zombi
18. Moves
19. Blade
20. Zorro
21. Stone
22. Mosel
23. Order
24. Sodom

To win most scenarios position your forces in the following manner. Retreat to your buildings then place all the artillery in front of the door. Surround them with your other units and place all spare ones inside the building. On your movement turn wait for the computer to select attack targets, once they've been hit move them inside for repair. On your attack phase only use the artillery and shoot enemy units that are nearest to your perimeter units. Generally, shoot down his aircraft first as they pose the biggest threat. The computer rarely puts damaged planes in for repair, so they'll soon be reduced. Once the aircraft are put out of action attack the artillery, then go in to finish him off. Thanks to Paul Kirby from Leeds. He wins a game.

FLASHBACK



For those of you who've made it this far, here's the solution for the final level of *Flashback*.

At the start climb onto the ledge, operate the lift up, take gun out, kill alien, go up, right, operate lift up, go right, operate switch, go left to replenish energy if needed. Go back to screen with alien on and go right, operate lift down, kill alien, pick up key and use on lock, operate lift up, then up again, save game. Take one step back from the save game point then roll right three times to get past the slime. Next, go down, use the key on the lock, stand on the edge of the lift then operate it up, use the receiver so it goes down the hole, then use the transmitter. Then kill the alien and get the receiver back, shoot the eye thing and watch out for laser beams, go to the far left in the same room and use the receiver again, then use the transmitter. Get the receiver, go right, drop the receiver by holding it and pressing DOWN and ENTER together. Now go left till you find a save point and save the game. Go left as far as possible to replenish your energy if needed, then go down. Next go right, climb on ledge and shoot the thing in the middle of the room, then go to the opposite side and repeat the same. Repeat till one of the things on it stops beating and no aliens come out. Go right, operate the switch, operate the lift up, go right, operate the lift up, place the mouse on the beeping object and an alien will appear. Shoot the alien, pick up the key he dropped and use it on the lock. Operate the lift down, go right, kill all the aliens, then roll right past the slime. Go to the far right and when you are commanded drop the atomic bomb, operate the switch and use the transmitter. If the screen hasn't started shaking, then use the object called '75' and go to the lift which is approximately in the middle of the screen. Finally, stand on the lift and operate it up and you will be greeted with a superb end sequence.

Many thanks go to Gavin Kay of Sheerness, Kent who wins a game for his solution.

BODY BLO

Stand by your joysticks! Team 17 are here with a fistful of hints and cheats for the meanest, moodiest beat 'em up in town.

Listen, you bunch of lily-livered wimps – if you're still struggling to get in the same ring as Max, then we're here to transform you into a champion prize-fighter. No matter if you're a weedy six-and-a-half stone wet lettuce, the following player's guide is guaranteed to make you king of the ring. In order to keep things as simple as possible, we've based our player's guide around Nik, although most of the techniques that we're about to divulge should work equally well with the other one-player characters in the game.

NIK

So here's Nik. Being the leader of a local gang, Nik's had plenty of practice when it comes to inserting his hand in other people's faces. Decked out in ripped jeans and baseball cap, Nik likes to think of himself as the ultimate street warrior. Such is his hatred for his elder brother Dan that he can channel his rage into a bolt of pure energy with devastating consequences. Yep, he's one mean mutha – just be thankful that in this player's guide he's on your side.



VS. YIT-U

First up for a hammerin' is the Billy Whiz of his generation. Yit-U may boast about his 'special technique', but he's not as fast as he'd like to think. He's fairly easy to beat if you fight defensively, i.e., block his punches and only attack when he uses his power speed. Use a combination of Mid-Kick and Sliding Kick while he's charging down on you.

VS. DUG

This lump of lard is about as tough as a soggy piece of toast. Start off with a couple of flying kicks to back him into a corner, then follow up with a combination of Mid and Low Kicks. Once you've toppled him to the ground, jump back and wait for him to rise to his feet. As soon as he's standing again, jump forward with a flying kick and then hit him with another combination until he falls over again. Repeat this method until he's beaten. Dug can only really cause any trouble if you give him enough time to perform an 'Earth Tremor'. If it looks like he's about to pull one off, jump into the air just as he's about to slam into the ground and then hit him with a Low Kick. That'll leave him winded so you can then wade in with some more Mid Kicks to finish him off.



VS. NINJA

Aerial attacks are the best way of knocking the stuffing out of Ninja. After you've successfully chopped him up, follow this up with a combination of Mid and Low Kicks. When Ninja uses his 'Death Roll', block and counter with a Mid Kick followed instantly with a Roundhouse Kick. This technique will be a success three times out of four.



VS. MARIA

Our Latin Lass has a special move called the 'Flemenco Fury' whereby she spins around until she hits you with a devastating force. If she tries this when she's at the opposite end of the screen, hold down your fire button and unleash your 'Inner Energy Bolt' which will put an end to her dancing career once and for all. Apart from this tip, use the same methods as those that you used to beat Dug.



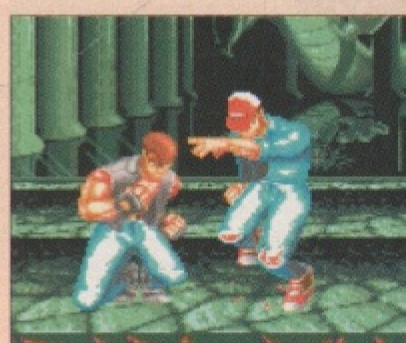
VS. KOSSAK

So far your opponents have been a particularly weedy bunch, but things start to hot up when Kossak enters the fray. He possesses awesome strength, although he moves like a slug walking through Golden Syrup. Wait for Kossak to come to you and, when he gets close, fire off multiple combinations of fast attacking moves. If he manages to get in close and starts his 'Driller Killer' move, immediately counter this with a Mid Punch followed by a combination of Mid and Low Kicks.



VS. DAN

Be wary of Dan as he has exactly the same strengths and weaknesses as Nik. The only exception is that his power up is slightly faster than yours. When Dan is close and jumps up or over you, counter with an uppercut. This is a particularly effective move and will knock him off his feet and give you time to think out your next move. The best way to finish him off is to jump in and take the fight to him attacking as much as possible.



WS

VS. LORAY



This guy possesses an awesome weapon in the form of the 'Buddha Flame'. The only way of beating him is a Sliding Kick or a Flying Kick over the Buddha Flame attack, followed by a combination of two to three moves in quick succession and then a hasty retreat. Repeat this method until he's punched out of the ring. This method will take some time to master, so don't give up after a few defeats.



VS. MIKE

Mike may look like the gentleman of the pack, but he sure doesn't fight like one. Treat him in much the same way as you would handle Junior, but with a little more caution as he's slightly faster. Jump in and unleash a combination of moves, block until he attempts a 'Whirlwind Punch' or 'Whirlwind Kick', then let him have another fearsome combination of shots.



VS. JUNIOR

A boxing champion, Junior is about as tough as they come. The secret to beating him is to mount an all-out attack and never relent for one second. Jump in and kick ass. A word of warning though: watch out for his special move – The Blitz – or else you'll end up flat on your back seeing stars.

VS. MAX/T17

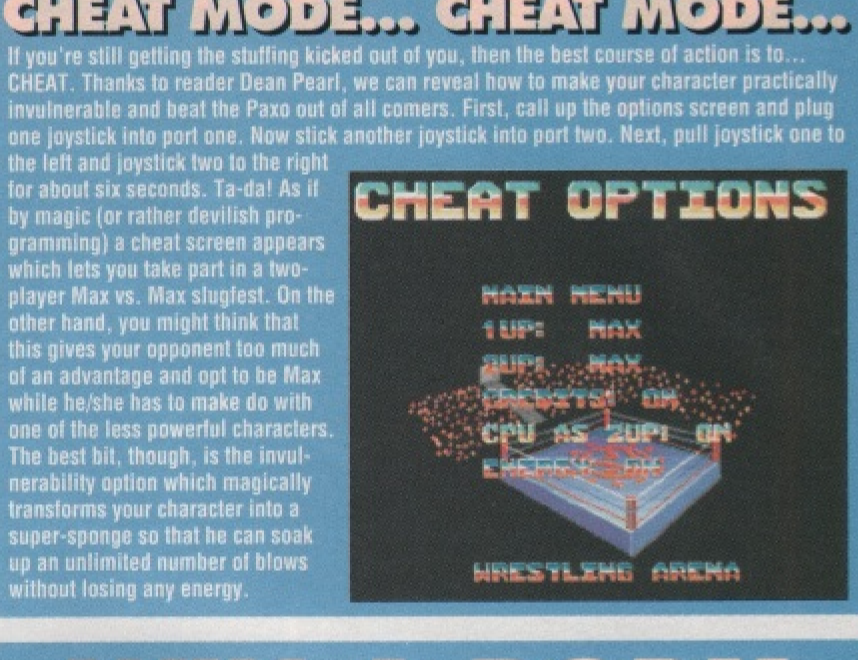
This guy is as fast as Yit-U and nearly as strong as Kossak. It's also impossible to throw or kick him to the ground, so he's always ready to attack. Keep things simple: block, attack, block. And remember, once you've defeated Max you've got to go through it all again as his skin peels away to reveal the steel-like muscle of the T17 man-machine. Just as tough as Max, the T17 character should be treated in much the same way – i.e. with extreme caution. Don't get boxed into a corner, otherwise you'll take a pasting. Kick low and fast to keep the android off balance and then follow up with a quick succession of chest-high body blows. If this doesn't work, roll out the prayer mat and pray!



CHEAT MODE...

CHEAT MODE... CHEAT MODE...

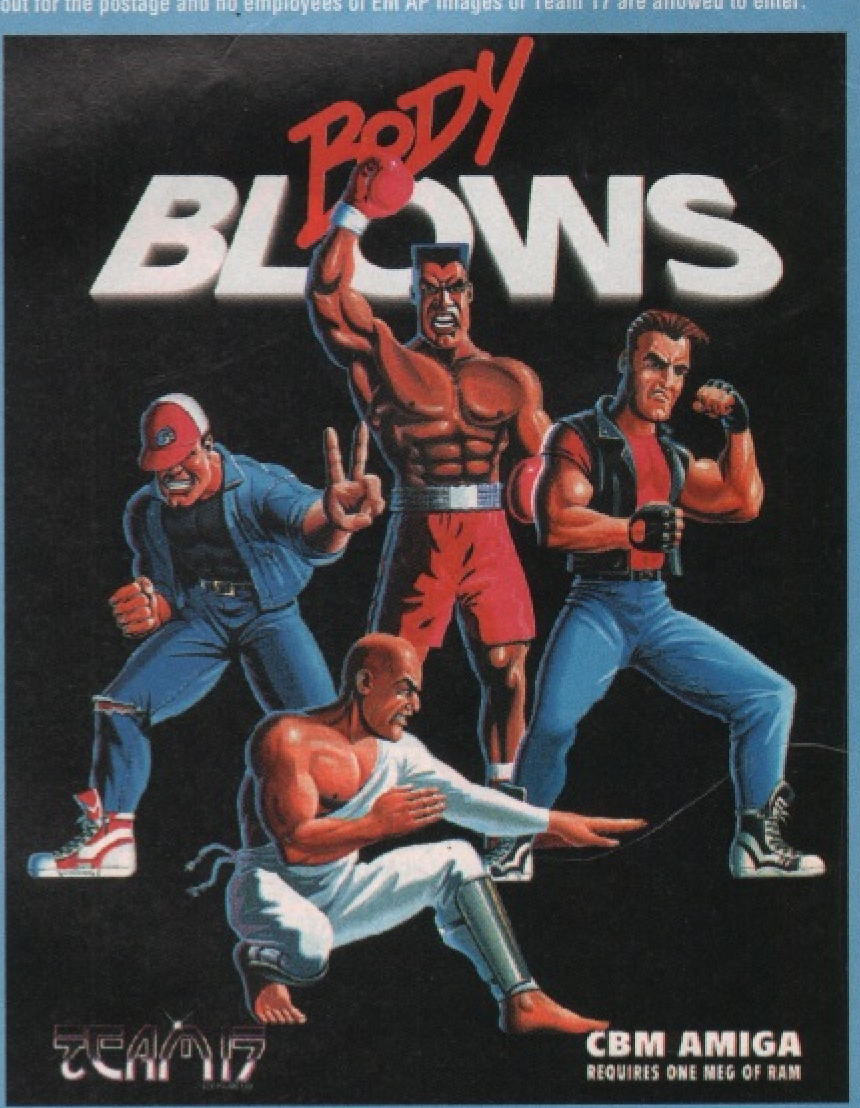
If you're still getting the stuffing kicked out of you, then the best course of action is to... CHEAT. Thanks to reader Dean Pearl, we can reveal how to make your character practically invulnerable and beat the Paxo out of all comers. First, call up the options screen and plug one joystick into port one. Now stick another joystick into port two. Next, pull joystick one to the left and joystick two to the right for about six seconds. Ta-da! As if by magic (or rather devilish programming) a cheat screen appears which lets you take part in a two-player Max vs. Max slugfest. On the other hand, you might think that this gives your opponent too much of an advantage and opt to be Max while he/she has to make do with one of the less powerful characters. The best bit, though, is the invulnerability option which magically transforms your character into a super-sponge so that he can soak up an unlimited number of blows without losing any energy.



WIN A BODY BLOWS POSTER

100 POSTERS UP FOR GRABS

Want one of these? Thought so. Thanks to Team 17, we've got 100 *Body Blows* posters to give away and all you've got to do to win one is tell us which was the first beat 'em up that Team 17 ever released. Once you've jotted that down with your name and address, send your postcard to: Body Blows Compo, CU AMIGA, Priory Court, 30-32 Farringdon Lane, London, EC1R 3AU. Entries to arrive no later than May 20th, 1993. First out of the hat wins and the Ed's decision is final. No correspondence will be entered into, as Dan's far too cheap to pay out for the postage and no employees of EM AP Images or Team 17 are allowed to enter.



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What do you get if you mix shoot 'em up action with some brain-straining strategy? A bloody hard game, that's what. So here to help out with Renegade's *The Chaos Engine* are the Bitmaps themselves.

THE CHAOS ENGINE

PARTNER UP

Before you start to play you must choose the team to take on The Engine. Here's a quick chart to give you a hand. Remember – the more you spend on the characters the less you'll have to improve their stats with.

Character	Cost	Weapon	Damage caused with no power-ups	Damage caused with full power-ups
Brigand	2750	Rifle	7	36
Mercenary	2750	Gatling	6	36
Gentleman	2500	Flamer	5	30
Navvie	3000	Cannon	8	44
Thug	3000	Shotgun	8	49
Preacher	2500	Lightning	6	27

Character	Max no. of bullets	Does shot travel through monsters?	Specials
Brigand	4	Depends on power-up level	Shot burst, Molotov, Attract
Mercenary	6	Never	Bomb, Mines, First Aid
Gentleman	2	Always	Map, Attract, Repellant, Party Power
Navvie	4	Depends on power-up level	Dynamite, Shot burst
Thug	7	Never	Molotov, Air burst
Preacher	1	Always	First aid, Map, Shield, Freeze

NOTES

1. The maximum damage caused is a factor of the number of bullets shot. So the Preacher causes 27 damage with 1 shot, whereas the Thug fires 7 bullets which do 7 damage each.

2. When you're still getting used to play, choose the Brigand or the Mercenary as the human controlled character (HCP) as they're fast and versatile. As for the computer controlled character (CCP), choose either the Gentleman for his speed and map, or the Preacher for his first aid kit.







GENERAL PLAY GUIDE

When you set out, use the map as often as possible as it may reveal secret rooms. It's also useful for finding out what a set of keys does. Use it before you pick them up and then afterwards.

Try to collect all the silver keys that you can as they open up the exit route and can make other vital objects appear. Gold keys open up secret rooms or bonus areas. They also have a habit of disappearing if left alone for too long. If you pick up one set they may make the others disappear, so don't worry if you can't find them. Bonus rooms often contain tough monsters, so don't tackle them until you're more experienced.

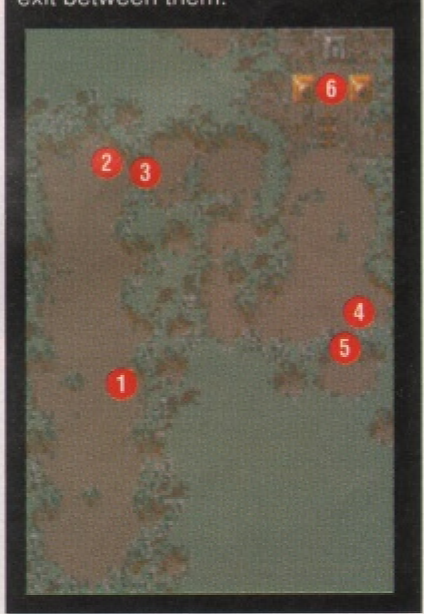
If a level has more than one exit try to make your way to the one with the higher letter. The higher the letter, the better your starting position will be on the next level.

You'll need cash to power the players up. Pick it up as soon as the monsters drop it, as it quickly disappears. When you get to the equipment stage buy weapon power-ups and extra lives for yourself and intelligence for the CCP. Extra lives are awarded for every 7,000 points.

Finally, not everything is as it seems. Bonus/secret areas may be concealed behind walls/hedges and can be accessed simply by shooting the obstruction. Also, some monster generators are actually warps to secret areas – if you kill all the monsters and the generator remains, try jumping into it.

WORLD 1 LEVEL 1 – THE BEGINNING

1. Shoot this node.
2. Silver keys appear here when the node is shot. Pick them up.
3. The silver keys open up this hedge.
4. Collect the gold keys here.
5. The gold keys open this hedge to reveal a bonus room.
6. Shoot these nodes to open the exit between them.



CODES GALORE

It seems that the Bitmaps' game is extremely popular indeed, witness its meteoric rise to the top of the game charts. Also, we've been inundated with codes this month. Unfortunately, most of them are not worthy of publication. This is because the codes are very specific to the characters that you're playing, the score they've amassed, how many power-ups they've got, etc. Fortunately, one or two of you spotted some very useful codes which give you loads of cash enabling you to get 30 lives, full power-ups, etc. The downside of this is that they obviouslly limit you to the characters that they create – still, you can complete the game with them so here goes.

HHGGFFDDCCBB – Thug and Preacher, World 1, approx. 50000 cash.
LQPBK8JWDNBY – Thug and Preacher, World 2, approx. 40000 cash.
8H8BK0SWQY7H – Thug and Preacher, World 3, approx. 30000 cash.
P28BKM6XMWWK – Thug and Preacher, World 4, approx. 30000 cash.
JJHHGGFFDDCC – Navvie and Brigand, World 1, approx. 10000 cash.
PKJKDL1#DFD4 – Brigand and Mercenary, World 4, approx. 20000 cash.
XXXXXXXXXXXX – Gentleman and Navvie, World 1, approx. 30000 cash.
YYYYYYYYYYYY – Thug and Gentleman, World 1, approx. 20000 cash.
VVVVVVVVVVVV – Brigand and Mercenary, World 1, approx. 30000 cash.
TTTTTTTTTTTT – Mercenary and Gentleman, World 1, approx. 45000 cash.

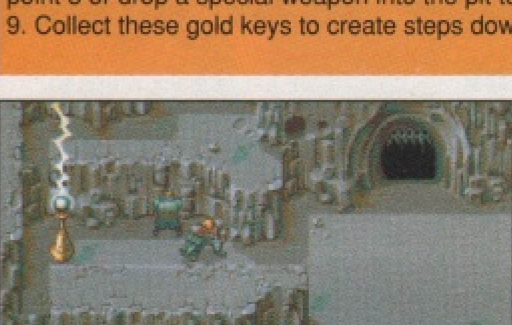
Many thanks go to all those who sent codes in, but especially to James Shirley from Cowbridge. He was the first one to tell us about the code that gives you loads of cash. If he writes in we'll send him a game (sorry we didn't take your address).

»

WORLD 1 LEVEL 2 – MUD RIVERS

1. Shoot this node first.
2. These silver keys will appear once the node has been shot. A bridge will appear directly below them.
3. Collect these gold keys to create the series of bridges that lead to 4.
4. Collect the gold keys here to create another set at 5.
5. These gold keys are used to create the bridge to the east, thus giving access to a bonus area.
6. Silver keys here. Collect them to create a bridge to the west.
7a. If you take this route you'll have to battle hard 'cos it's the hardest way out of the level. Collect the gold keys at the end and retrace your steps to point 6 and then go north to the node.
7b. Take this route south to the node instead of the route described in point 7a.
8. Shoot this node to open the exit. If you can't reach it collect the keys from point 8 or drop a special weapon into the pit to activate it.
9. Collect these gold keys to create steps down into the node pit.





The only way to get to this node at the end of the Rings world is to run straight for it once you're on the plateau.

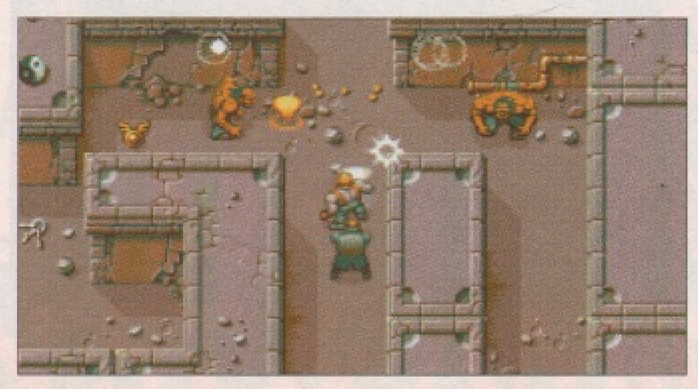
WORLD 1 LEVEL 3 – RINGS

1. At this point take the hazardous southern route to point 2.
2. Collect these gold keys and a set of steps will appear at point 3. There are loads of goodies to collect there.
3. Climb the stairs to collect the gold keys at the end of the promontory. They will then create steps at point 4.
4. Go up the steps to collect more goodies.
5. Shoot the pillar on the right here (the one with the face on it) to get to the silver keys inside the circle. Pick them up and the passage to the north will open up.
6. These gold keys shut down the monster generator next to them.
7. Collect the silver keys here to open the way to the node at point 8.
8. The silver keys that are here cannot be picked up. Shoot the node to reveal silver keys at point 9.
9. Collect the keys here to open the next section and reveal the gold keys at point 10.
10. Collect the gold keys here to open a bonus area to the west.
11. Pick up these gold keys and on the way back north shoot the pillar on the left with the face on it to open a secret area to its right.
12. Collect the gold ring from here to warp the silver keys next to you. Pick them up and they'll open the passage north.
13. Shoot this node and then follow the series of gold rings to the silver keys at point 14.
14. Pick the silver keys up to create steps to the north. Go up these and immediately run east to get the gold keys at point 15.
15. The gold keys here can only be collected if you run straight here first. Picking them up will reveal a node which, when shot, opens exit B.

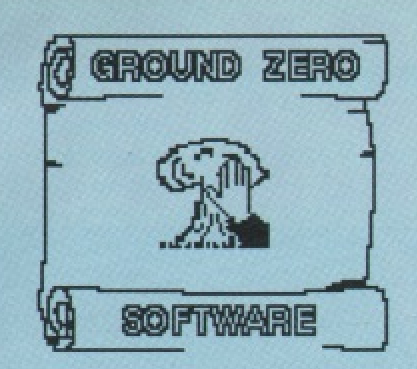
WORLD 1 LEVEL 4 – THE ROCKIES

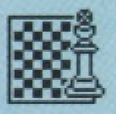
1a. If you followed the instructions for the Ring level correctly you'll start here. If so, collect all the goodies and then go up the stairs to collect the silver keys and shoot the node at point 2.
1b. If you exited the Ring level from exit A you'll start here. Go east and up the steps to collect the silver keys and shoot the node at point 2.
2. The silver keys at point 2 will open this passage up. Go through it and head east to the warp hole in the hedge. Jump in to be transported to a secret goodie room. Once you've cleared the room out you'll be transported back here.
3. Collect the silver keys from here to create the ones at point 4.
4. Collect these silver keys and they'll create the steps up to point 5.
5. Once here shoot the node to the east and a set of silver keys will appear. Collect the keys to create the steps at point 6.
6. Climb the stairs and proceed along the ledge collecting the bomb to shut down the beetle generator.
7. Pick up these silver keys and another set will appear just to the north. This will happen four times; be careful collecting them though as the thumpers above you fire directly at the places they appear. The final set will create steps to the north.
8. Activate the node at the bottom of the pit using a special weapon. Alternatively collect the activation token to the south, but be warned that this creates loads of thumpers which all fire at you. The exit is now open.
9. Your progress here is blocked by two rocks. You can only shoot one of them; make sure it's the one on the right as it hides some gold keys. Pick the keys up and a set of steps will appear south to a bonus room. After clearing this out head for the exit.

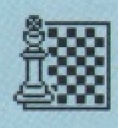




These mutants take a lot of shots to dispose of. Hide around the corner and shoot and run.





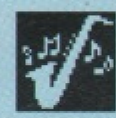



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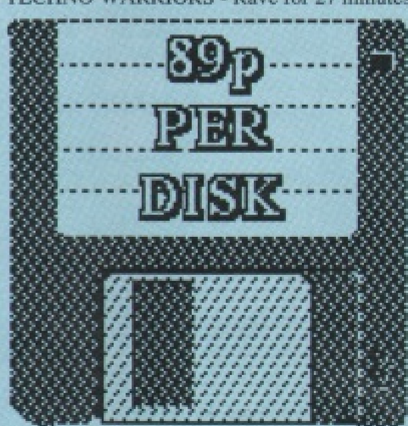
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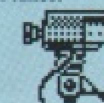
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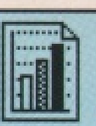
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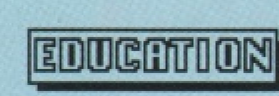


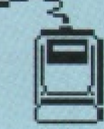
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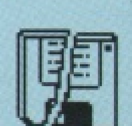
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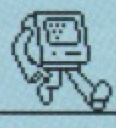
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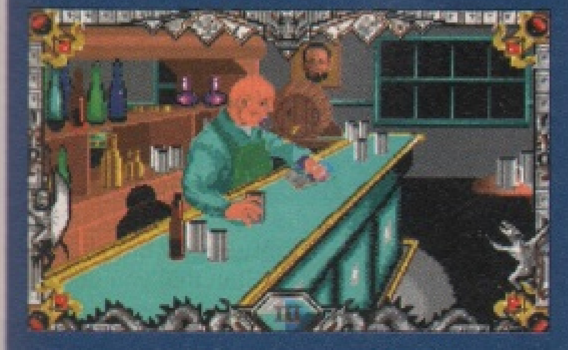


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THE SHRINE OF KNOWLEDGE

Draw near and ask your question. Don't be embarrassed, even the most noble adventurer is sometimes stuck for a clue. Behind the velvet curtain is the Shrine of Knowledge, where all secrets are revealed and hearts are laid bare.

MONKEY ISLAND II

Adrian Nye of Bath is so desperately short of underclothes that he is even prepared to wear old pirates' pants – at least he would if he could find some. Despite the fact that CU Amiga has already attempted to give a blow-by-blow solution to *Monkey Island II*, I continue to receive pleas for help with this mega-adventure. To complete the list of ingredients for a voodoo spell, we require a piece of Largo's clothing, but Adrian can't figure out how to get some.

The Shrine replies: It's going to be very difficult to get any of Largo's clothes, as it is a well-known fact that pirates only change once a year – whether they need it or not! Before Largo will remove anything, it will need to be 'really' dirty. Pay a visit to the men of low moral fibre sitting next to the laundry and ask them for the bucket which is hanging from the ship's stern, (that's the blunt end.) You'll need to ask them very prettily, but they'll give it to you in the end. Take the bucket to the swamp and fill it with mud. Nip back to Largo's room and place the bucket above the door. Hide behind the screen and you'll be treated to the sight of Largo having a mud bath. If you now follow our muddy pirate you'll see that he takes his shirt to the laundry and collects a ticket. Largo will now return to the ship and hide the ticket behind the door in his cabin.

INDIANA JONES AND THE LAST CRUSADE

Some adventures are really dangerous and instant death awaits us around every corner. Happily I have arrived 'just in' time to help 'Justin' Aldcroft who is 'just about' to shoot himself with frustration. Justin is finding that it's pretty damp beneath the streets of Venice and unless he can find a way to drain the lake this will definitely be Indiana Jones' Last Crusade. In a lower corridor there is a wooden plug in the roof of the cave. Justin is pretty sure that his solution centres around this object, but he hasn't a clue how to remove it.

The Shrine replies: Retrace your steps and find the skeleton which is tied to the wall. If you »

LURE OF THE TEMPTRESS

Wales is, according to tradition, a land of dragons, dark mountains, and mighty wizards who can solve almost any problem you care to mention. Unfortunately, Andrew Sharp, who also lives there, is not quite so clever. Having successfully left the caves in *The Lure of the Temptress*, Andrew is supposed to get into the castle and defeat the hated Skorls, but instead he finds himself wandering around the town unable to find a way in.



Being a Peeping Tom does have its compensations. Pay special attention to the actions of the Skorl guard when he visits the local shop, and then you'll survive in *The Lure of the Temptress*.

The Shrine replies: Have you had much experience peeping through other people's windows? I sincerely hope not, but now's the time to try. Before you can make any more progress I suggest you follow the wandering Skorl guard and peep through the window of the local shop when he goes inside. Instead of getting the usual cheeky sign from the shopkeeper you'll now find out something to your advantage.

OPERATION STEALTH

More than one adventurer is drowning in a sea of troubles beneath the waves of *Operation Stealth*. Saekyu Lee of Tolworth finds himself trying to imitate Houdini while roped to a beautiful young girl – and failing miserably!

The Shrine replies: Are you wearing a bracelet? I'm not trying to cast doubts on your manhood, it's just that you have no chance of escaping from a watery grave unless you have previously bought an inflatable bracelet from the pedlar on the beach. When you first arrived in the country you went to the bank to exchange your money for the local currency, didn't you? Well, you must carry out that action twice to change all of your dollars into pesos. Once you've done that you'll have enough money to buy a bracelet. If you're wearing your bracelet when you are captured (and very fetching you'll look!), you can operate it briefly, just before you are thrown overboard. Once you are in the sea, wait until you reach the bottom, then operate the bracelet again. This action will break your bonds and let you swim free. Head for the girl and Operate Girl.



In *Operation Stealth* you'll have to take a few dives in the ocean, so it would be a wise precaution to buy an inflatable bracelet before you get out of your depth.

A word here to Innes MacDonald from Scotland, who complains that he can't swim out of the underground cave before he drowns. The trick is not to do the trip in one go. If you examine the overhanging rocks carefully you'll find a few places where you can pop your head above water and take a breath.

» examine the poor wretch you'll find that he has a hook where his hand once was. (I believe he died as a result of picking his nose.) Take this hook and use it on the wooden plug. Now, with one mighty lash of your bullwhip, you can pull the plug from the roof and drain the lake.

EYE OF THE BEHOLDER II

Standing in the dim light of a flickering torch is an adventurer called Tony Wilson. He is located somewhere on the first floor within the *Temple of Darkmoon*; he's in a strange room which can be found by smashing the black statues in the alcoves until you discover the secret button which is hidden behind one of them. Press the button and you will find the way in. Within the room, each of the four walls contains a niche which holds a precious gem, and in the centre is a circle of soft ground. The light of the torch reflects off the glittering gems and off the glazed eyes of Tony Wilson. 'What do I do now?' he asks.

The Shrine replies: There are many strange tasks which you must engage in within the dark confines of Temple Darkmoon, and gardening is one of them. The room you are in is easy to get into, but difficult to get out of. First collect all of the gems and place them in one niche – this will reveal a passageway. Repeat this trick for all four walls. Having been down the passageways and collected all the goodies, return to the central room. The soft ground you speak of is just the place to plant a seed – a 'tropelet seed'. Your clever brain should have worked out that 'tropelet' is an anagram for teleport and that's how you'll get out.

SIERRA CHEATS

The early graphic adventures from Sierra were really great games and they came with a hidden secret which one reader has written to tell you all about. Richard Parris from down under in Neighbours Land says that if you press Alt and D at the same time during a Sierra game you will be able to enter the Sierra Test Screen. At this time you can type TP for transport, or GET OBJECT. In response to the prompt New Room: or Get Object you can type a number and the game will either transport you to that screen or give you the object you ask for.

The Shrine replies: I knew that! I just didn't like to say. Of course the real problem with this cheat is that it only works for the old Sierra games.

LEISURE SUIT LARRY III

Can there be anything more frustrating than arriving at the beach only to find that you've left one part of your bikini at home? Miss E. Roberts from Clwyd has been to the barbers and had her hair dyed blonde, she has got the knife from the restaurant, the soap and matches from the guest room, the flower from the jungle, but no bikini top to hide her er... blushes!

The Shrine replies: There is one other essential thing which I hope you have – a Save Game back onboard ship. The bikini top is lying on the bottom of the swimming pool of the cruise ship. Next time you find yourself at the beach without a full bikini I suggest you send us a photograph for the Inn's Adventurer of the Month board. Incidentally, for those adventurers who can't even board the ship because they can't find their passport, I suggest you examine the trashcan outside your home.



There is lots of pink flesh on the nudist beach, but Larry won't find a bikini top here. Have you kept all your Save Game positions? You're going to need one if you have to retrace your steps.

MONKEY ISLAND

If you were only 11 years old you'd think you'd have enough trouble just trying to get your homework ready for handing in on a Monday morning, but Joe Long from Oxon has far greater worries. Having completed the three trials in *Monkey Island*, he now finds that he doesn't have enough money to buy a boat and hire a crew of pirates.



Lost in the jungle looking for a clue? Try putting yellow flowers in your casserole and you'll find that whoever eats it will fall asleep.

The Shrine replies: You don't need money to get a crew, you simply have to find the right men. You can rescue one from the prison by using lots of mugs to carry grog to the cells where you can use the foul liquid to melt the lock. You can recruit the Sword Master if you simply ask her. Go to the house at the top of the island and use the rubber chicken on the wire. Talk to Meathook and get him to come also. Buying a boat is a little bit more complicated. Tell Stan that you don't have much money and he'll show you the Sea Monkey. Go back to the old shopkeeper and ask for a credit note. Lie about having a full-time job, then watch how the shopkeeper opens the safe. Ask about the Sword Master again, and when the shopkeeper leaves, you can open the safe and steal the credit note. Return to Stan's boatyard and ask for the Sea Monkey. Keep refusing his offer until you beat him down to a price you can afford.

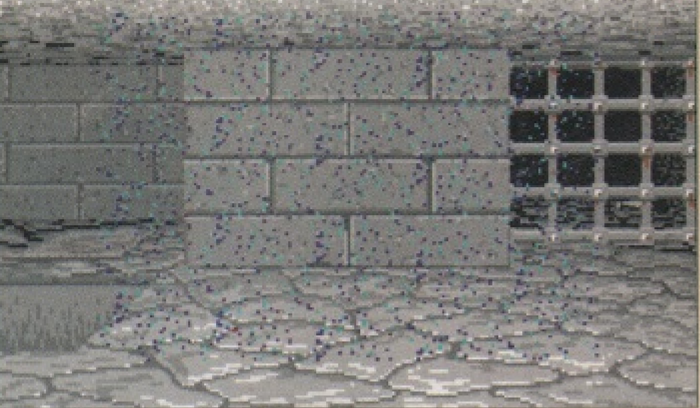
Now that we've solved that problem I think I should urge you to get back to your maths homework. It's no good being a pirate captain if you can't count properly. Who are you going to trust to split up the gold treasure fairly if you can't count?

With these final words of wisdom the magical glow from the Shrine fades and dies. We trust your visit has not been in vain and the light of knowledge has lit up one of the dark corners of your mind. Should your journey bring you this way again I trust we'll have the pleasure of your company.

DUNGEON MASTER

I have had a worrying letter from Peter Bower of Oldham who doesn't seem to be aware of the trouble he is getting himself into. Peter writes that he is on Level 6 of *Dungeon Master*, and having successfully solved the Riddle Room he has made his way to a large open area where he is being bothered by some slightly odd-looking oranges! Having searched the room for keys he is now at a loss for what to do next.

The Shrine replies: An apple a day keeps the doctor away, but if you mess with funny-looking oranges you're going to need an army of surgeons to fix you up. The dodgy fruit you refer to are Wizard's Eyes and they are very dangerous. You will find to your cost that they are able to open closed doors, so before you snuggle down to sleep behind a shut door, make sure you aren't 'kissed' awake by one of these beauties. In the room you speak of are two wall buttons, one at the NE corner and one in the SE. Each of the buttons opens the wall near the site of the opposite button. The clicking floor slab you mentioned opens another secret wall compartment, but you can't get to it before it closes again. The trick is to get some skeletons to stand on the slab for you. Use a magic box to freeze them on the spot while you collect the goodies.



On Level 6 of Dungeon Master is a pretty puzzle. To get the key, simply switch of the transporter, put a heavy object where it was, then switch the beam on again.

WRITE BACK

If you have a problem, a notice for the Board, or perhaps you have a piece of scandal which you wish to whisper in the Inn, write to Tony Gill at: The Troll's Head Inn, CU Amiga, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.

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50 KIXX BUDGET UP FOR

WIN THE LOT

In a magnanimous gesture of unsurpassed generosity, those charitable folk at KIXX and KIXX XL have stumped up the readies for one lucky reader to win 50 classic Amiga games. Just imagine your postie puffing and wheezing his way up the garden path, legs buckling under the weight of 50 of the best Amiga games ever published. Sounds too good to be true? Well, read on as we're going to tell you exactly how you can get your mitts on this mountain of Amiga games.

Scattered around this page you'll see a goodly selection of some of the games we've got on offer. Whether it's the platform tomfoolery of *Rick Dangerous*, the shoot 'em up action of *SWIV* and *Z-Out*, the adventuring malarkey of *Zak McKracken* or *Indiana Jones*, there's bound to be something here to keep you playing into the wee small hours!

To be in with a chance of carrying off this heavyweight prize, all you have to do is correctly identify the six in-game shots we've printed on the entry coupon on this page. Each one is taken from a classic Amiga game which is included in the bundle of games we're giving away.

When you think you've got it sussed, write the names of all six games in the space provided on the entry form and post it to: The CU AMIGA/KIXX Great Amiga Games Giveaway, 30-32 Farringdon Lane, Farringdon, London, EC1R 3AU. Entries to arrive no later than June 20th, 1993.





HERE'S THE COMPLETE LIST OF GAMES UP FOR GRABS
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WINNER T

T GAMES R GRABS!



AKES ALL

SO WHO ARE THESE KIXX GEEZERS ANYWAY?

For those of us on a restricted budget (and let's face it, that means most of us!), budget software offers a cheap alternative to full-price games. And just because they're cheap doesn't mean they're poor quality, as the Kixx and Kixx XL labels ably demonstrates. Starting out with just a few titles, Kixx has grown into one of the country's premier software publishers with more than 70 Amiga games on offer and many more in the pipeline. If you want a cheap way to pick up on some of the Amiga's classic games then Kixx must be one of your first ports of call.

If you'd like further information about Kixx or Kixx XL, write to them at: Units 2/3, Holford Way, Holford, Birmingham, B7 6AX or ring the Kixx hotline number on 021 625 3311.

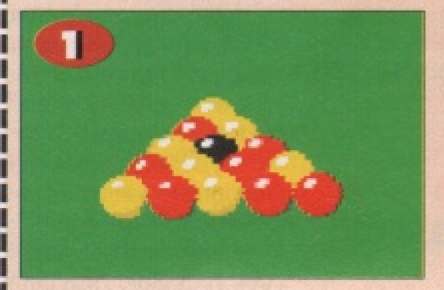
ENTRY FORM

Cut out this coupon and send it to: CU Amiga/Kixx Great Amiga Games Giveaway, Priory Court, 30-32 Farringdon Lane, Farringdon, London, EC1R 3AU.

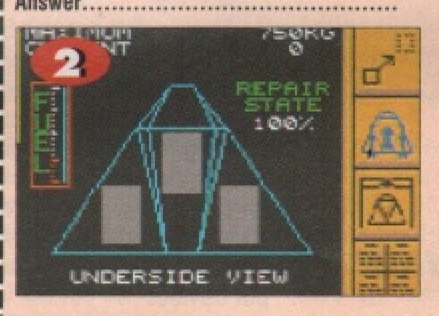
HOW TO ENTER

Here are six screenshots that have been taken at random from the 50 games that we're giving away. Once you think you've managed to correctly identify each one, simply jot down your answer in the space provided above each screenshot. You must make sure that you provide an answer for each one to be in with a chance of winning the software.

Screenshot one
Answer...



Screenshot two
Answer...



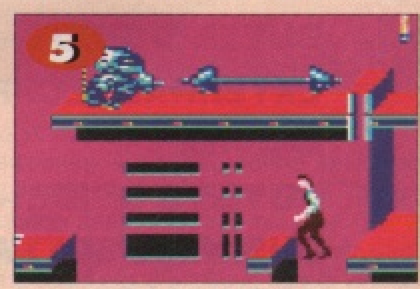
Screenshot three
Answer...



Screenshot four
Answer...



Screenshot five
Answer...



Screenshot six
Answer...



Name: ....
Address: ....
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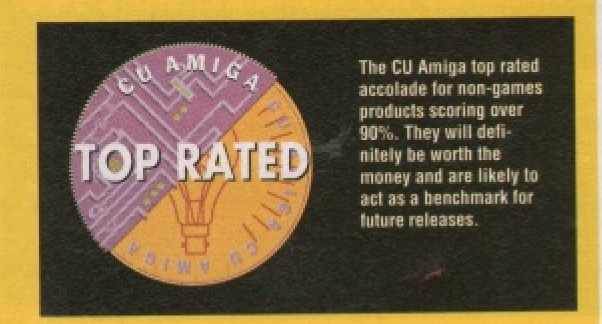
Tick box if you'd like to know more about Kixx budget titles. [ ]

RULES, RULES AND MORE RULES...

1. This competition is not open to employees of EMAP Images/KIXX.
2. The Editor's decision is final and no correspondence will be entered into.
3. Results will be published in a future issue of CU Amiga.
4. Anyone earning more than £25,000 a year caught entering this competiton will be publicly ridiculed for being a cheapskate. (That means you, Craig!)

GET SERIOUS

It's time once more to get down to some serious talking as we feast our eyes on another batch of hi-tech wonders.



TYPESMITH

Nick Veitch has the final word on the font designer previewed two issues ago.

The ability to use Compugraphic fonts in various DTP and graphic packages is an obvious bonus. Because they are re-scaleable they can be used at the highest possible resolution by any output device, be it screen, printer or graphics file.

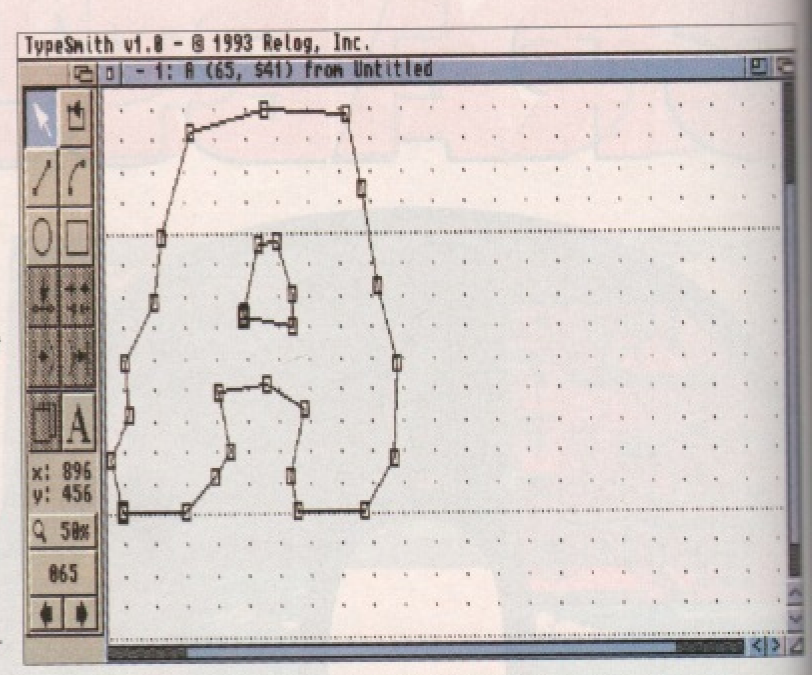
The usefulness of packages such as *ProDraw*, *ADPro* and *Art Expression* is enhanced, along with the obvious specialist DTP packages. Even Workbench can use Compugraphic fonts.

This leaves one problem – where to get all the fonts from. A lot of Postscript fonts are floating around various public domain libraries, but the trouble is that Adobe fonts are not directly compatible with the Compugraphic system used by the Amiga. Some programs, such as *Professional Page*, come with their own conversion routines, but these are usually only good for one type of font, and only convert to the font type used by that specific program.

TypeSmith solves a range of problems by recognising all types of Compugraphic font, as well as Adobe Type 1 and Type 3 fonts. It is possible to freely convert between formats (so you can now use your Gold Disk fonts through Workbench and vice-versa) and read in outlines and metric files separately.

That is only a small bonus though. *TypeSmith* has not been made simply to convert fonts, but also to create them. Each character can be built up by a combination of Bezier curves – the same drawing tools that are found in many structured art packages. The outlines follow Adobe procedures for path filling, so there should be no problems with characters coming out inverted or completely messed up when they are sent to a Postscript output device.

This is the only type designing package available for the Amiga, which usually means the software is a half-hearted effort which the programmers hope to sell before any competition arrives on the scene. This is not the case with *TypeSmith*; it shows all the features and professionalism exhibited in similar packages on the Mac. If you know Mac software then basically this is *Fontographer* for the Amiga (unless of course any copyright lawyers are reading this).



Creating your own outline font is a simple matter of being able to place a few points on screen. The controls should be familiar to anyone who has used an outline art program.

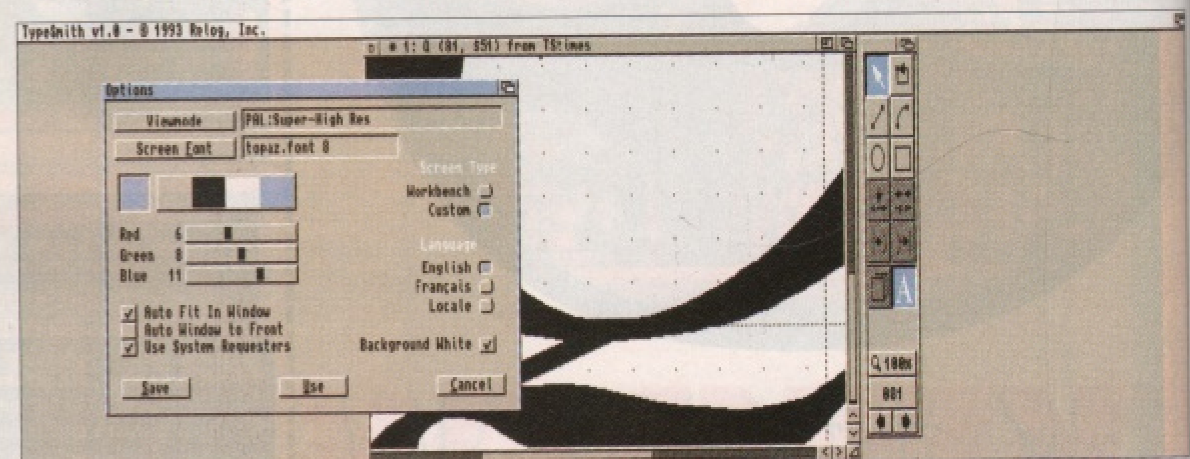
The only disadvantages are that the drawing method will be somewhat unfamiliar to users of either of the main structured art packages. Some of the fonts that are output in Adobe formats seem to take up rather an excessive amount of disk space – even when you are converting Compugraphic fonts, which were originally Adobe fonts, back into Adobe fonts.

There is also a bit of manual manipulation required when making Workbench compatible fonts. The files are made by *Typesmith*, but no font directory is constructed for the bitmapped versions. This must be done instead through the CLI and you must run *Fountain* or *Intellifont* (which one you use depends, of course, on the version of Workbench that you have) to complete the installation before the font will be available for use. It would have been nice if the otherwise excellent manual had explained this.

On the whole this really is a must buy for anyone who is involved in or seriously interested in desktop publishing or video work.

Contact : Silica Systems, 1-4 The Mews, Hatherly Rd, Sidcup, Kent DA14 4DX Tel: 081 309 1111 Price: £129.99

89%



TypeSmith is infinitely configurable and a fine example of Workbench friendly programming. An interlaced screen is useful for viewing the font in the correct aspect ratio, but it is not compulsory.

THE C ENCYCLOPEDIA V3

The best things in life are almost free, as John Kennedy discovers when he looks through a reference book with a difference.

When you are learning to program the Amiga with C, you have two very distinct problems. The first is learning C itself, and the second is learning to program the Amiga.

Things have progressed a long way from the days of C64 and ZXSpectrum coding. The Amiga is a multitasking computer, providing each and every task running on it with a virtual 680x0 machine. In other words, every program thinks it has its very own Amiga to run on.

Clearly this isn't so – but if every program follows the strict rules laid down by the operating system, everything will work together in perfect harmony. The operating system also goes to extraordinary lengths to provide a good, multitasking graphical user interface called Intuition.

There is a cost to using the most advanced operating system available, and if you visit a bookshop and flick through the official Amiga programming guides you'll soon see what it is: there's so much to know!

Programming the Amiga can seem such an awesome task that some would-be coders never get further than their first visit to the bookshop. This is a great shame, as although it can't be denied that Amiga programming is a time-consuming task, the finished programs make the effort worthwhile.

Where else can you get access to some really powerful computer hardware, and make it do what YOU want? When you use Intuition your programs will be robust, transportable and best of all they will offer a familiar interface to the user.

Getting hold of the information needed to program the Amiga should in theory require nothing more than that short visit to the computer section of that mythical bookshop. There you will be provided with a fantastic array of reading material on the subject, with shelves upon shelves of books featuring encouraging titles, friendly covers, pages of information and one big disadvantage – they are all printed on paper.

Certainly, some books will offer you a disk of typed-in listings if you send a large sum of money, but it's rarely worth the 28-day delivery time. Far better if the entire thing came in both Human and Amiga readable form as standard, complete with ready-to-run examples.

And that is exactly what *The C Encyclopedia* does. It has been written by Anders Bjerin, who over the last four years has updated his life's work to version three, and it now fills a whopping 12 floppy disks with text, programs and examples. He has created an incredible guide to using C on the Amiga, and in a very user-friendly way too.

Having long been acquainted with version 2 of the Encyclopedia, I had thought that my four-disk set would have sufficed, for I have used it as a reference work many times over without complaint. Version three happily proves me wrong, and quadrupling the number of disks now provides more code and examples than a very large stick could be shaken at.

Now the C code present also includes a complete 3D library, a copperlist editor, advice on using BOBs and sprites and a whole host of useful programs, all ready for you to integrate into your own code. No matter if you want to write a spreadsheet or a program that scrolls messages along the bottom of the screen, whilst a 3D logo rotates on the screen in time to music.

Needless to say, as all the code follows Commodore's guidelines to the letter, the examples should run on just about every Amiga ever made – or every Amiga that will be made. Any question that you might have had on Amiga programming has now been answered. 'How do I...?' now becomes 'On what disk is...?'

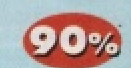
Although all but two disks from the set can be freely distributed and can therefore be picked up from most PD libraries for the price of the disk (in theory), there has always been a registration fee associated with the Encyclopedia. This fee has risen from previous versions to reflect the extra content, and it now costs £30 to become a registered user.

Your £30 also gets you membership of Anders' C programming club, which not only gets you the missing disks sent by airmail, but will also provide you with some very useful updates and services. For a start, you have the ability to pick some of the best Amiga C programming minds in the world, so you will never be left to struggle with a problem alone. Furthermore, as a registered user you have Anders' blessing to use his code in your own programs, even if they are to be commercial products.

To get your copy of *The C Encyclopedia*, ask your favourite PD library if they have it in stock. AmigaNuts is one library that definitely does have it. Failing that you can order the complete work, and register at the same time, by sending £45 to the address below. If you wish to register a copy you obtained from a library, you should send £30.

Sending money abroad is always a tricky business, and to Sweden especially. If you were to send a cheque, it would actually cost Anders more than its value to cash it. Probably the best way to get the money to him is to send bank notes, after evaluating the Post Office's insurance schemes.

Address your money to: Amiga C Club, Anders Bjerin, Tulevagen 22, 181 41 Lidingo, Sweden

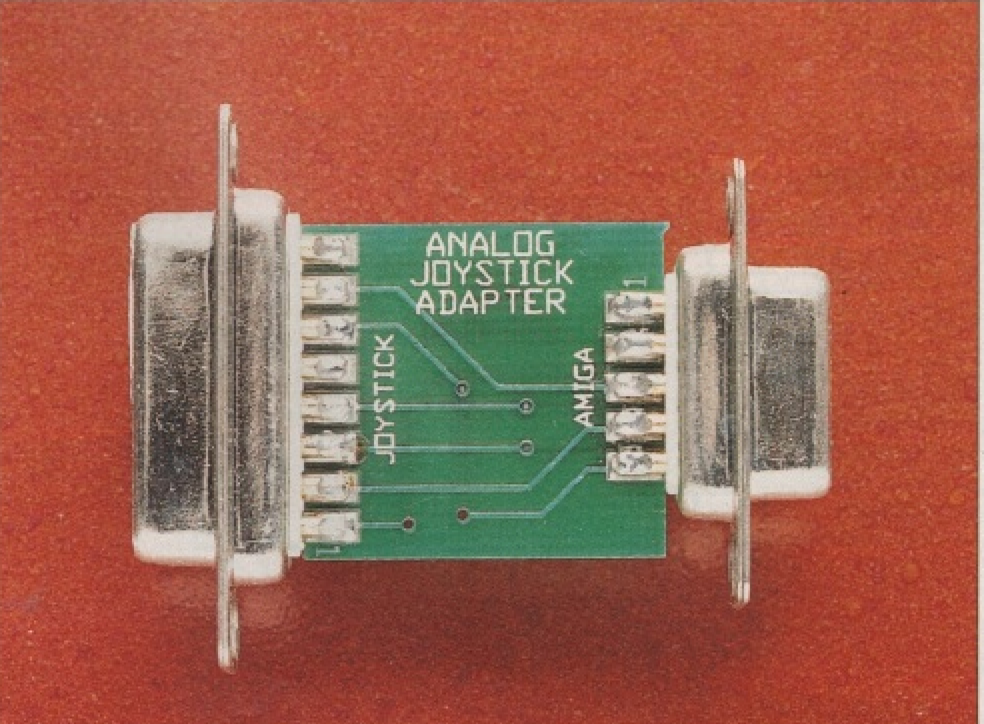


THE ACE

Need more control over your games? Tony Horgan tests a new analogue joystick interface.

Have you ever found yourself in the middle of playing a flight simulator and becoming increasingly frustrated by the lack of realistic control that you have over your actions? Joystick response is usually either too sensitive, in which case you'll be rolling and flipping the plane at every opportunity, or else the controls will be so sluggish, it'll feel like you're flying through a cloud of treacle.

The answer is to invest in an analogue joystick. Analogue sticks differ from their digital equivalents, in that instead of simply conveying the direction of movement, they can sense the amount of force and speed with which they're moved. Let's say you were playing a Formula 1 simulation. With a digital stick, to avoid skidding around the bends, you'd have to steer in bits and pieces, holding and releasing the stick. If you did this in real life, you'd probably roll the car! An analogue stick would let you enter the bend gradually, and then cut across the apex, before sliding smoothly out again.



There aren't many Amiga-compatible analogue joysticks, but the PC market is full of them. This is where the Phoenix adaptor comes in.

The Phoenix is a little gadget that consists of a postage stamp-sized piece of circuit board, with a joystick plug at each end. One is a normal 9-pin D plug, and the other is a 15-pin D plug.

The small circuit simply repatches the connections from the analogue PC standard, so that they're compatible with the Amiga. Now you can take your pick from the analogue joysticks available for the PC.

If you're into flight sims, it will also allow you to use those yoke controllers, elevating the realism to even greater heights. If you're fed up with erratic digital stick controls, get hold of the Ace and give your simulations a new dimension.

Contact: Phoenix Microtechnologies, 18 Hampton Road, Keswick, South Australia, 5035. Tel: 010 618 2938752

80%

Superjam! 1.1

Thanks to *SuperJAM!* anyone can create superb tunes in seconds. Mat Broomfield checks out the latest update.

Whether you're a professional musician or a first time dabbler, *SuperJAM!* will have you creating music in moments. We looked at version 1.0 of the program back in February 1992 when it scored a massive 91 per cent. Now version 1.1 is here with a host of new features which are designed to make the composition process easier than ever, whilst adding even more variety to your music.

SuperJAM! is basically a composition tool whose primary purpose is to help you to create themed music as quickly and painlessly as possible. You can use it purely for its own sake, as I do, or you can use its output as the basis for further composition in other music packages.

The basic package is supplied with 32 musical styles ranging from reggae to waltz and hip hop to country. There are numerous additional musical styles available as optional extras.

A QUESTION OF STYLE

Although you can use *SuperJAM!* to create your own musical styles, for most of us, the whole value of the program is its predefined styles. Eventually you're going to get sick of listening to the same old styles time and time again, and when that happens you'll be delighted to learn that there are three additional style disks available, each of which contains 10 great new styles.

The first of these is called Dance Mix and, as its name indicates, contains a selection of styles lifted straight from the nightclub scene. From the cool strains of Chill to the throbbing bass line of Powerdance, these are the very thing for composers looking for some dance-oriented motivation.

If the Eurovision song contest is more your speed, then World Music is what you're looking for. It contains the following styles: Appalachia, Argentina, Caribbean, China, E Europe, Gypsy, India, Italy, Mexico and S Africa. Each of the styles represents the musical style of a different nation or racial group, and if you're using a GS compatible MIDI instrument, they'll even be played using appropriate instruments.

The last of the style disks is called Movie Soundtrack and it contains a selection of styles which epitomise different cinematic genres. From the slapstick of Hijinks to the ethereal intricacy of Otherworld, these styles are by far the cleverest of the batch, managing to capture their chosen themes with uncanny accuracy. Some of the grooves included in this collection were distinctly dubious, representing not so much subtle variations on a theme, as totally different themes altogether.

As you might expect, there are the odd duff styles among the disks but overall, I found all three to be very exciting to use. Used in conjunction with version 1.1 of *SuperJAM!*, the extra grooves included with each style make them even better yet.

The program can be used on two levels, one of which is ideal for experimenting whilst the other is suited to recording compositions for future performance or modification.

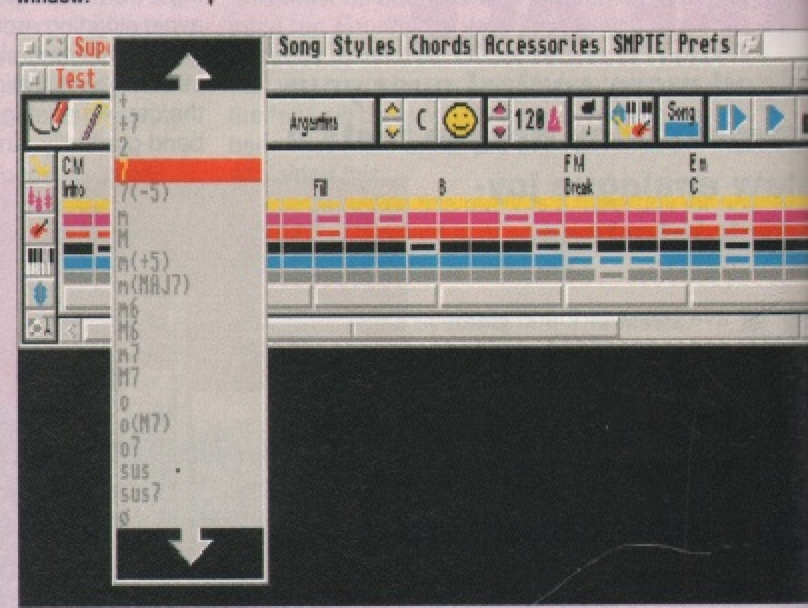
JAMMIN' WITH THE BOYS

In keyboard mode, simply choose the play style you want, click 'Play', and the program will immediately commence, playing a repeating four or eight-bar loop in the chosen style. This loop is very much like the type of music produced by the auto-rhythm feature of most modern keyboards. It's played by up to six 'band members'. Each member of the band plays a different instrument, and the complete ensemble comprises drums, strings, keyboards, horns, bass and guitars. However, apart from the drummer these titles are more representative of the musical role each band member performs, rather than a literal description of the instrument he plays. Therefore there are times when the horn player may play timpani, whilst the keyboard player may be called upon to play xylophone for example. In fact, you can decide what instrument each band member plays at any time in any case.

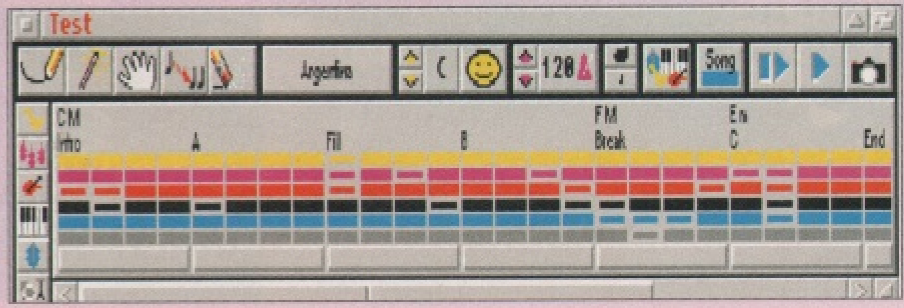


Left: You can use the keyboard to 'Jam' along with the program as it plays music in your chosen style. Notice the Style Embellishment buttons (Intro, Break, Fill and End) can now be accessed from this window.

Left: Although it sounds like a 50s coffee maker, Blue Ribbon's Eas-O-Matic system is actually an ingenious way of letting you specify complex chord and key changes at the click of a button or press of a key.



Above: When it comes to changing the key of a piece of music, you must first select the required pitch, before going on to specify its scale. Once you've done that, the entire tune will play in the new key.



Right: The Section window is where you can record songs for future performance or alteration. All six band members can be altered individually and you can insert a wide range of musical instructions at any point.

At the bottom of the screen, there's a miniature piano keyboard, and by clicking on its keys, the pitch and key of the loop can be altered. Just above the keyboard, four buttons labelled Intro, Break, Fill and End are collectively known as the Style Embellishment buttons. If you click on one of these whilst a loop is playing, the selected action will be performed in the current musical style. Although the original *SuperJAM!* supported this feature, it was not available from the keyboard window and could only be applied to tunes recorded in the Section window.

Beside the Embellishment buttons are four entirely new buttons labelled A, B, C and D. Blue Ribbon describe these as 'Groove buttons', but 'Variation buttons' would be more appropriate because each one activates a variation on the current musical style. For example, if you start playing a piece whilst button A is depressed, you may find that the chosen style is only played using a piano or guitar. Click button B and a second or third band member may join in, and subtle changes may occur to the rhythm of the loop. Generally speaking, the higher the button number, the more instruments and the greater the musical activity.

These buttons represent the greatest enhancement to the program over its predecessor because between them they mean that the number of musical permutations for any given style are increased fourfold.

SOUNDING OFF

The program uses either a MIDI instrument or internal samples to produce sound. The interesting thing is that by using special samples known as TurboSamples, the program is able to play up to 16 notes at a time despite the fact that the Amiga only has four sound channels!

The thing about TurboSamples is the more powerful your Amiga, the better their quality. When I first reviewed the program, the TurboSamples were rather poor in quality, but as I was only using a bottom-of-the-line Amiga, I expected that. I'm now running the program on an Amiga with 10Mb of 32-bit RAM, a fairly fast 68030 processor and a 68882 maths co-processor, and yet the TurboSamples are still nothing to write home about. They sound very tinny and electronic, a bit like the cheaper hand-held games. The fact that their stereo position can be altered helps to improve their clarity, but for a less high powered user, I wonder whether they'll be worth using at all?

FOR POSTERITY

When you're ready to create something a bit more permanent you'll need to go to the Section Editor. Here the piece of music you're working on is represented by a strip of blocks which extend horizontally across the screen. The strip is divided into six parts vertically, each of which represents different band members, enabling you to turn them on and off at will throughout a performance. At the start of each of these horizontal blocks you can add a musical instruction such as a key or groove change.

The functions of all of the Keyboard Window buttons can be duplicated at any point in the section editor, so you can choose between four variations of the main style, as well as inserting intros, break, fills and endings. Once you've created a section it is in turn represented in the Song window as a block, and it's by arranging these blocks according to your preference that a song is constructed.

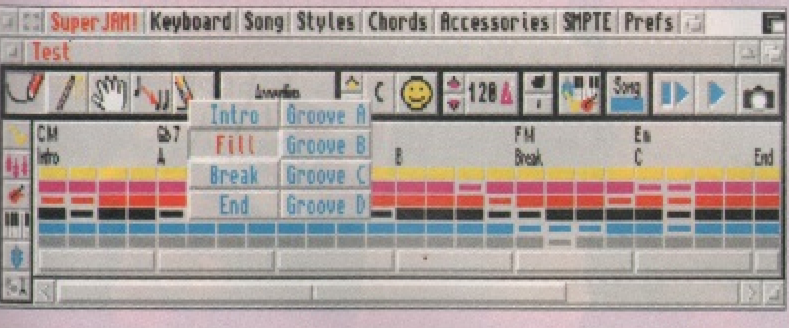
When you're happy with your song, it can be saved in *SuperJAM!*, SMUS or MIDI format. SMUS format saves can be loaded into programs, such as *Sonix*, whilst MIDI files can be loaded into *Bars & Pipes*, *Dr T's*, *Sequencer One* and a host of others.

JARGON BUSTERS

● KEY – A key defines which notes will sound right and create a specific 'feel' when played together in a piece of music. There are times when particular notes will sound wrong (or discordant) if played with certain other notes, this is because they are 'out of key'.
● LOOP – A repeating piece of music which may last anywhere between a few seconds and half a minute.
● MIDI – Musical Instrument Digital Interface – An electronic standard for connecting computers and instruments so that they can communicate with each other.
● PANNING – Panning is a term used to refer to the stereo position of a sound. A sound may appear to be projected from any position in a 180° arc. Many MIDI instruments allow you to specify exactly where in that arc an instrument allows you to recreate the physical location of members of a band or orchestra.
● OCTAVE – The smallest unit of pitch on a piano keyboard – the distance between one key (black or white) and then one beside it – is called a semi-tone. Twelve sequential semi-tones are called an octave.

CONCLUSION

SuperJAM! version 1.0 was superb; version 1.1 is simply awesome. The real beauty of it is that its main features are really easy to use so that non-professionals can dabble happily for hour upon hour making wonderful music at the click of a button. Yet at the same time, hidden beneath its colourful exterior there are dozens of powerful customising options so that more demanding users can create completely original tunes with equally little effort. CU



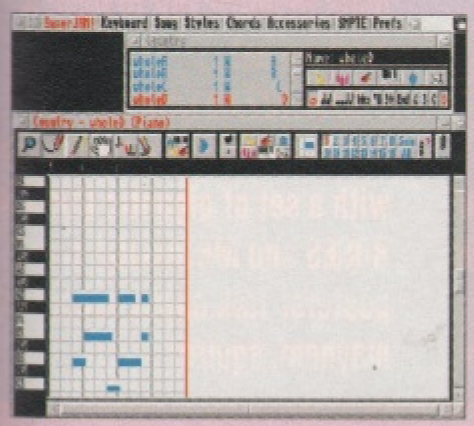
Left: A tune is always played using one of the four grooves, you can change the Groove a tune uses at any time. Each Groove is a variation on the basic musical style selected.

Below: Because *SuperJAM!* now supports the GS standard, if you have a GS compatible synth you can assign band members by name rather than by program number.

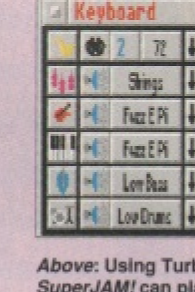


Left: The new Volume/Pan grid lets you set up a MIDI instrument easily. The higher the icon the louder its volume, the further left or right the greater the pan.

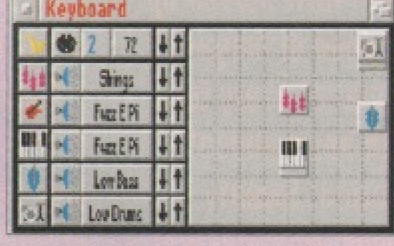
Left: The more musically minded user may wish to alter the chord structure. The program now supports two octave chords which facilitate 13th and slash chords.



Above: If the provided styles become a bit stale, you can always try to define your own!



Above: The preferences requester lets you customise the program to use Workbench 2.0 requesters.



Above: Using TurboSound technology, *SuperJAM!* can play up to 16 notes at a time – through the Amiga's internal sound channels! Their quality is dependant upon the power of your computer though.

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EASE OF USE 90%
The basic stuff is easy to use, but the advanced features obviously take a while to learn and understand.

VALUE FOR MONEY 75%
A great program, but considering its slightly limited scope to the average user perhaps a tad overpriced.

EFFECTIVENESS 90%
It's amazing just how effective and versatile these simple styles can be.

FLEXIBILITY 75%
Awkward to compose original music with this program, but good mileage in the 'variations on a theme concept'.

INNOVATION 95%
Similar ideas have existed for years, but Blue Ribbon have really expanded the concept beyond all recognition.

"An awesome composition package, packed with features to appeal to hobbyist and professional alike."

OVERALL 89%

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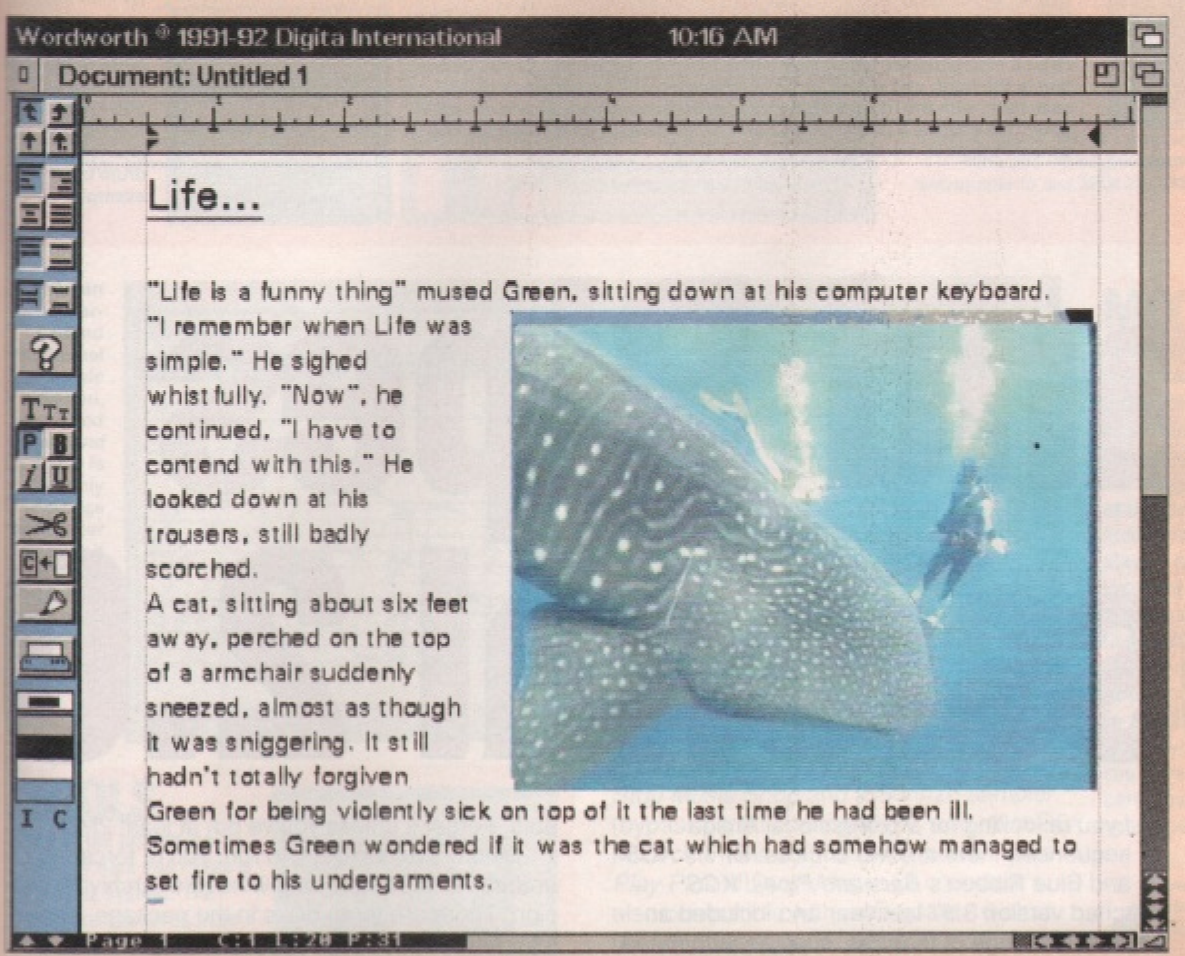
RAW 121 on sale April 14 comes complete with an exclusive set of rather spiffing IRON MAIDEN, GUNS N' ROSES, MEGADETH and PANTERA beer mats to allow you to have a drink on us!

RAW 122 on sale April 28 packs an even meatier punch with a set of gigantic GUNS N' ROSES and METALLICA tour posters! Talk about value for mayhem, squire!

RAW: SHEER VOLUME WITH ATTITUDE, ON SALE EVERY OTHER WEDNESDAY

Wordworth v2 AGA

One of the best page processors is now available in dazzling 256 colours. John Kennedy takes a look.



Creating full-colour fishy stories with *WordWorth* is now ever easier, with up to 256 different colours on-screen at once.

Much has been written in these pages about *WordWorth*, which is widely considered to be one of the best page processor packages currently available for the Amiga. For the unenlightened, a page processor lies in that grey area somewhere between a word processor and a desktop publisher, stealing ideas from both in order to make producing reports, fliers, adverts and in fact anything which involves graphics and text – as easy to create as possible.

Of course, with the release of the new Amigas and the new AGA chip set, software companies have a perfect excuse to produce a whole new range of updates, because the Amiga has had its colour capabilities improved markedly.

MODERN ADVANTAGE

The so-called 'serious' programs available for the Amiga all use high-resolution screens, which offer a horizontal resolution of 640 pixels – any less and the screen becomes too 'chunky' to show sufficient detail.

JARGON BUSTERS

- **BITPLANE** – an area of memory set aside for a screen display, organised as one bit per pixel. Multiple bitplanes allow more colours.
- **GIF** – A standard image file format, popularised by Compuserve and said to be the most used standard in the world.

The drawback to a hi-res screen is the lack of colours that it allows you: only 16 in pre-AGA days. Now The Next Generation machines can offer up to 256 colours in this hi-res mode, which means programs such as *WordWorth* can start to have real fun.

COLOUR PROBLEMS

The problem used to be that when loading graphics into your page the colours that were used to displayed them could only ever be approximations. With more than one image, there just weren't enough palette entries to go around, and the results that you got on-screen could be extremely confusing.

WordWorth AGA allows up to 256 colours on-screen at once, which means that not only will a 256-colour image appear with total accuracy, but several 32 colour screens can also appear, each with their own palettes intact.

Of course, having all this memory set aside for graphics does have its drawbacks. For starters, when an 8-bitplane screen is used there is a noticeable decrease in speed when menus appear and text is shifted about. In fact, I was very surprised that things hardly slowed down at all. Perhaps with larger projects things would get slower, but I didn't get to create really big documents because of the second drawback: memory.

The cheapest AGA machine – and a bargain at that – is the A1200, which comes with 2Mb of RAM as standard. This might seem a gargantuan amount, but running *WordWorth* will soon dispel that myth. Using a 256-colour display, you will find the number of images you can load will be limited – it won't be long before the 'Not Enough Memory' requestor begins to pop up. This isn't a problem with *WordWorth*, rather a consequence of using better graphics.

GET HIP

WordWorth ensures that all Amigas can make use of a Workbench 2 environment, by creating its own. This is one of the points with which I'm not totally happy – I would have preferred a completely Intuition friendly approach if at all possible.

If this had been done, the special Workbench 2 file filters (as used by *Multiview*) might have been incorporated, which would have meant that GIF and TIFF images could also have been supported.

Probably the only other niggle I have is that images lose detail whenever they are scaled down and then scaled up again. If you don't place your pictures right first time, you'll need to re-load them.

CONCLUSION

The supplied Agfa scalable fonts and the postscript output mean that you'll need to be into some seriously heavy home printing before you outgrow *WordWorth*.

Bear in mind that you don't need to own an AGA machine to use this program – but if you don't you won't see the extra colours. However, you'll still benefit from the ability to load all the new IFF formats (and PCX) and also enjoy the slightly improved printing speed. This makes *WordWorth v2 AGA* an ideal upgrade no matter what type of Amiga you own. CU

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EASE OF USE 79%
Apart from the floppy disk install procedure, WordWorth is very easy to use.

VALUE FOR MONEY 75%
The upgrade for existing owners is a paltry £10.

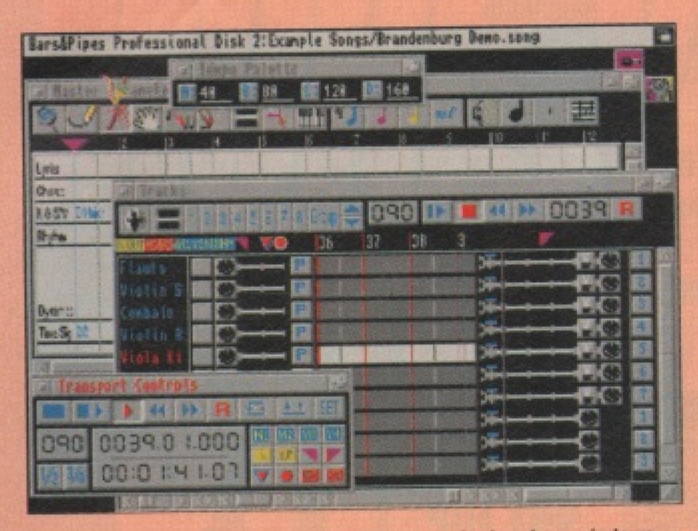
EFFECTIVENESS 82%
Screen modes now include options for 32, 64, 128 or 256 colour displays.

FLEXIBILITY 80%
All IFF formats – including HAM8 – are supported.

INNOVATION 85%
It's good to see software companies supporting the AGA modes – it proves the Amiga's future is bright.

> *More colours means using pictures is easier than ever before – memory permitting*

OVERALL 81%



Bars and Pipes Pro 2 uses the increasingly popular free-form windows interface. Even if you've got a 1.3 machine, you still get the 2.0 look.

Even if your windows get completely out of order, you can still just pop one to the front, and sweep all the others under the carpet. Such is the case here, with the track screen neatly concealing a mess of smaller windows. It's actually a good idea to keep things neat, closing down unused windows to save memory.

You can get to the tape-style transport controls from a few windows, but if there's room, it's best to use the dedicated transport window, which comes complete with info on the measure and timing.



To speed things up, and save memory, you can filter out parts of the MIDI data that you don't need to record, like aftertouch on a drum track for example.

Bars and Pipes Professional 2.0

The race to get ahead in the world of professional Amiga sequencers never seems to come to an end. Tony Horgan investigates the latest tipsters' favourite.

If you're looking for a professional Amiga sequencer, there are two choices: Dr T's *KCS* and Blue Ribbon's *Bars and Pipes*. *KCS* reached version 3.57 last year and included an impressive range of features, such as automated mixing, score printing and graphic and numeric editing, with a clever interface holding it all together. Now, with its new 2.0 upgrade, *Bars and Pipes* is nosing ahead.

Despite the claim on the box that *Bars and Pipes* needs 1Mb to run, it actually needs more than that. With a bit of CLI trickery, I managed to make up a copy that would just about load onto a 1Mb machine, but even then there's not enough memory to open any windows, so it's still unusable. Forget it unless you've got at least 2Mb.

Before you can get it to run, you're forced to endure an extremely long-winded unarchiving session. There are three disks in the package, and after decompressing them you're left with four. What is the point of this? Why on earth couldn't the software have come ready to use on four disks? We don't need this hassle!

POWER HUNGRY

Bars and Pipes is designed for the musician with a lot of kit. It would work just as well with a modest MIDI setup, but large efforts have been made to support just about any bit of sound hardware you can imagine, including direct compatibility with *The One Stop Music Shop*, General MIDI modules, Blue Ribbon's three-way MIDI interface, the Roland Sound Canvas, and the Sunrize AD1012 and AD1016 hard disk recording/sampling boards (allowing you to synchronise set-rate samples from the hard disk with your MIDI sequences).

The package also caters for audio-visual production, with support for Scala and the Video Toaster, and can even control an external SyncPro SMPTE generator.

The new version has been written for use with Workbench versions 2 and above, although it still works fine on a 1.3 system. The main advantage you get on a version 2+ Workbench is the bigger screen. *Bars and Pipes* is all based around windows – each section of the program has its own window, and when you've got a lot of things on the go, it can get rather cluttered. Using a double-size scrolling backdrop, there's room to lay out and open up all the windows you need.

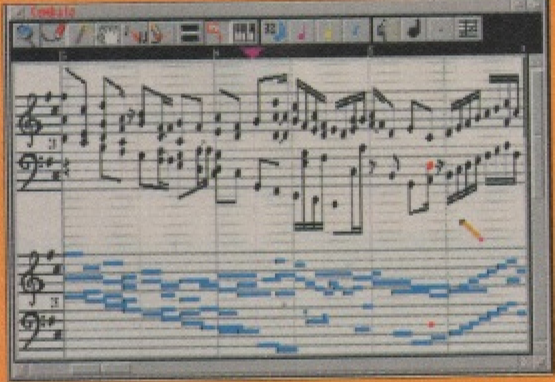
RECORDING

Despite the massive range of features, once you've got to know your way around the basic

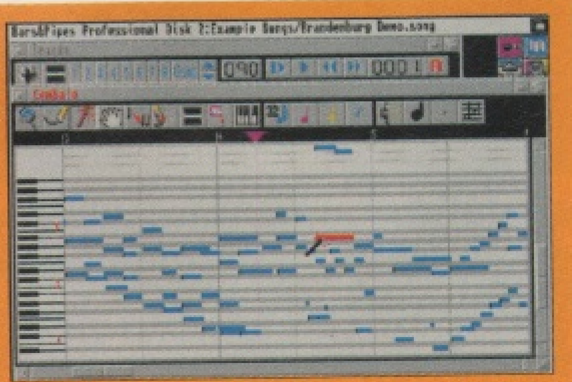
THE GRAPHIC EDITOR

After you've recorded a track, you can go into the graphic editor to tidy it up. *Bars and Pipes* can display the music in a number of ways. The sequencer-standard piano roll system shows notes as horizontal bars on a simplified stave. There's traditional sheet music notation too, or you can have a hybrid of both styles. Note velocities are shown at the bottom of the display, along with any other MIDI controllers you need to edit.

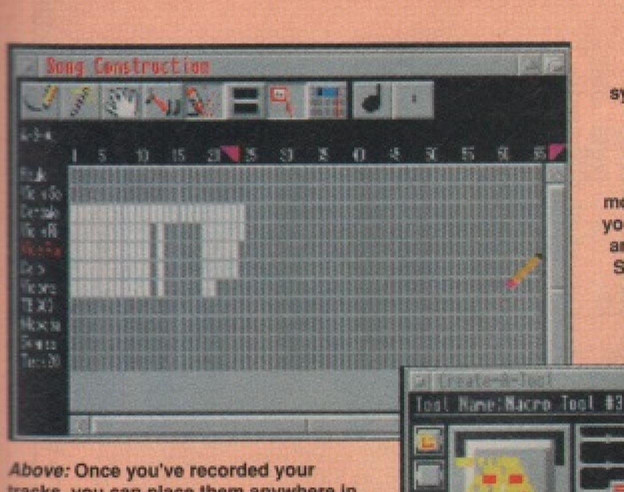
Step-time editing, especially useful for programming drum patterns, is also carried out from here. If you've got enough memory to keep the colour display, it's a lot easier to make out than the Tiger editor in KCS.



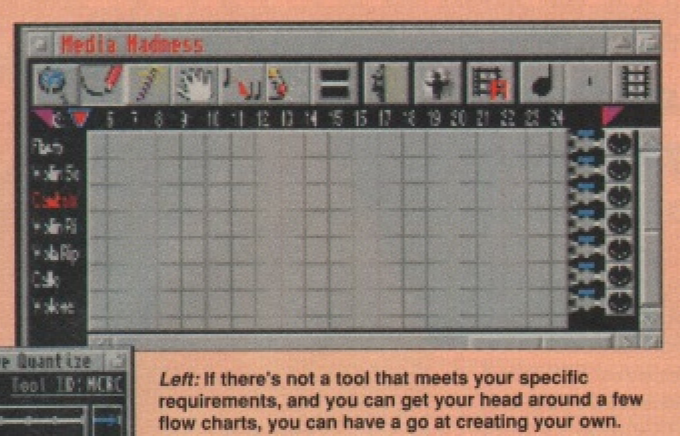
The graphic editor caters for traditional composers, with stave notation, and the rest of us with a piano-roll display.



Step editing is easily carried out in the graphic editor. With a bit of practice it can be a lot quicker than using quantisation.



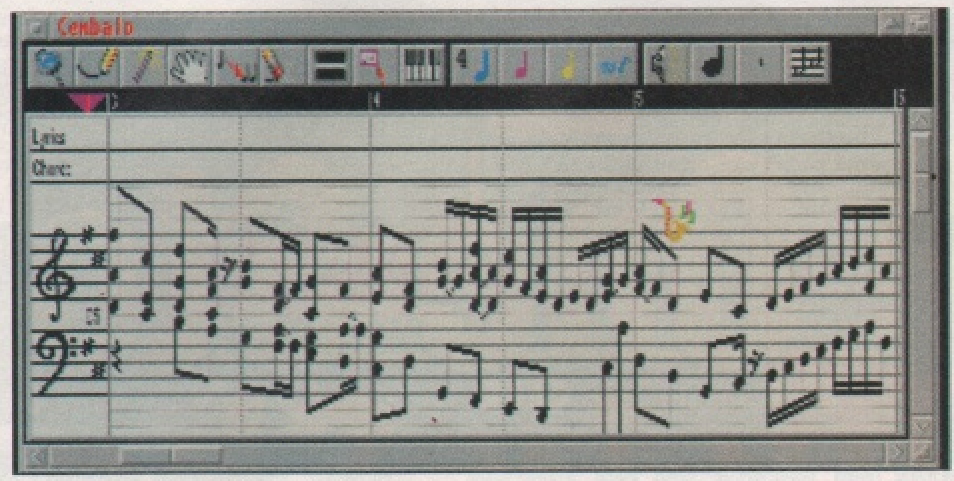
Above: Once you've recorded your tracks, you can place them anywhere in the sequence. To see how the whole thing's progressing, jump to the song construction screen.



Right: If you're into synchronised video and music, the Media Madness module will let you play Scala animations or SPMTE video in harmony with your sounds.

Left: If there's not a tool that meets your specific requirements, and you can get your head around a few flow charts, you can have a go at creating your own.

Right: A metronome is essential when you're recording. *Bars and Pipes* gives you the option to assign the metronome to any MIDI channel, an Amiga sample, or a flashing screen.



If you can understand traditional music notation, you'll find *Bars and Pipes* is the only Amiga sequencer to offer it as an option in the main editor mode.

MIX MAESTRO

Automated mixing is another area where computers are taking over from mechanical machines. The Mix Maestro won't do away with the need for a real mixer (at the end of the day you've still got to combine all your sound sources into a single stereo signal), but it can give you a lot more control over the final mixdown.

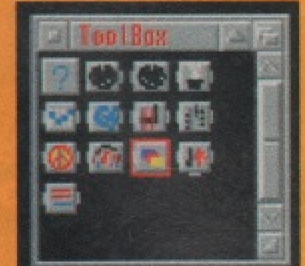
Every track can have its own channel on the mixer, and you can assign any MIDI controller to the faders, whether it's volume level, modulation, pan or whatever. The idea is that you set the sequence playing and move the faders with the mouse. All the movements are recorded, and if you made a hash of a particular part, next time you play the sequence, you can re-record the mixing, just as you would if you were recording performances from your keyboard.



With Mix Maestro, now there's no excuse for a dodgy fade-out at the end of the track.

TOOLS

One of the unique features of *Bars and Pipes* is the tools system. The tools are shown as little icons, and are placed at either the input or output ends of the tracks. Tools can do a number of different things, like defining the input or output path for a track (MIDI channel, *One Stop Music Shop*, Sunrize board etc.), and they can also affect the note data on the track. Arpeggiators, harmony and echo generators can be used to beef up your original performances. Other operations such as quantising and transposition are also dealt with by the tools. There are around 70 tools, and you can even create your own for specialised functions.



Each tool has its own icon, but to save memory, you only see those you've selected.

controls, recording is quite a simple affair. There's a handy loop record function, which makes laying down bass lines and rhythms a lot easier. By setting up a loop on the required track, you can record a number of continuous takes. The computer remembers them all, so you can decide which you prefer and then copy it into the proceeding bars.

Quantisation levels are user definable. If you put the quantise tool at the front of the track, your performance will be corrected and then written to the track. If you put it at the end of the track, the actual note data on the track remains un-quantised, but the notes are corrected on the way out. The results sound the same, but the second method leaves you with a recording of your original performance, which you can then try quantising in different ways.

The number of tracks that are available to you is only limited by your interfaces. It's quite possible to simultaneously sequence *The One Stop Music Shop* and a Sunrize sampler (bypassing MIDI altogether), and up to 80 MIDI channels with Blue Ribbon's *Triple Play Plus* MIDI interface. Of course, it's also compatible with a standard 16-channel MIDI interface.

SAMPLE SUPPORT

Most producers of big sequencers seem to think that 8-bit samples sound awful and aren't worth bothering with. Amiga samples have been used with great success in commercial records, so that's that theory down the drain.

Even so, Blue Ribbon have followed the others' lead, ignoring the massive potential of Amiga samples. A token sample replay tool is included, but it's hopeless. It demands IFF samples, but won't recognise loops and can't even play them at different pitches, so there's no chance of playing any tunes with them. While they continue to look down their noses at 8-bit samples, Blue Ribbon plan to add support for the forthcoming 16-bit DSP, when it eventually arrives.

CONCLUSION

There's no doubt about it, *Bars and Pipes Professional* is a very powerful piece of software, but to get the most out of it, you're also going to need a lot of powerful hardware. If you're working with a basic MIDI setup, made up of maybe one, two or three sound sources, you'll never use even half of the features on offer. It's in its element when it's at the heart of a big MIDI system. So long as you've got a beefy Amiga to run it on, with about 3-4Mb and an accelerator, *Bars and Pipes* can handle just about anything that you throw at it. Add a three-way MIDI interface, and you've got 48 MIDI channels to play with. Definitely not for the beginner, but if it's power and features you want, this is the baby. CU

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EASE OF USE 80%
Probably the most user-friendly sequencer around.

VALUE FOR MONEY 81%
About the going rate for a professional sequencer, but choc full of features.

EFFECTIVENESS 88%
Handles the biggest MIDI setups with ease, with video support to boot.

FLEXIBILITY 85%
Modular program design lets you tailor it to your needs.

INNOVATION 90%
Does everything the rest do, and plenty more besides. The most advanced Amiga sequencer available'

"The new number one sequencer for professional hi-tech musicians everywhere"

OVERALL 90%

How do you fancy a professional synth on a card? Tony Horgan makes some noise.



The One Stop Music Shop is actually a Proteus 1 synth. Blue Ribbon have ripped out the innards, and put them on a board that fits snuggly inside your Amiga.

The One Stop Music Shop

I don't know about you, but I've had enough of all these useless 16-bit sampling boards. They all look the business if you glance at the specifications, but try using them to make music and you'll soon realise how hopelessly inadequate they are.

Well, now Blue Ribbon have released a sound board that really works! Yes, you can use it as a General MIDI sound module. Yes, you can use it to make multi-voice soundtracks. Best of all, you can use it with any MIDI sequencer, from *MED* to *KCS* or *Bars and Pipes*. The catch? At the moment it's only available on a Zorro board, which means it's not compatible with the 500, 500+, 600 or 1200.

WHAT'S IT ALL ABOUT?

Don't let the name deceive you. The One Stop Music Shop is really a Proteus 1 synth module, put onto a board that slots into your Amiga. It has its own MIDI in and out connections and, in most situations, it acts just like a normal synth module, except that it's neatly tucked away inside your Amiga.

The Proteus 1 is a full-featured professional synth, but as the One Stop is on a board, there's no keyboard. To get the most from it, you should really use it in conjunction with a separate MIDI keyboard that can send velocity, aftertouch, pitchbend and modulation data. Even so, it's quite feasible to use it just with *MED* or *OctaMED*, playing the sounds from the Amiga keyboard. I know what you're thinking: how can you possibly get any worthwhile results from *MED*? Some will laugh at the idea – but let them laugh. The fact is you don't need a top-notch MIDI keyboard if you're writing certain types of music, and if you're au fait with the workings of *MED*, then why waste valuable time and money on extra kit, when you could be banging out the next worldwide floor-filler?

Even so, anyone who likes to record live, rather than program, will be far better off controlling the module with a professional sequencing package and a MIDI keyboard.

You may be wondering, if it's plugged into a Zorro slot inside the Amiga, how does it get to talk to your sequencer? The answer lies with its built-in MIDI connections. With a standard MIDI interface connected to your serial port, you can plug the One Stop's MIDI out to the interface's MIDI in and vice versa. If you use it with *Bars and Pipes Professional 2.0*, you can ditch the MIDI leads altogether, and address it via the Zorro slot.

PANEL BEATING

With the board out of reach in the Amiga's case, there's no control panel for you to select and edit the sounds with. Instead, it comes with patch editing software, which is a lot easier to use than a cluster of pokey buttons. It multitasks, so you can run it in the background along with your sequencer.

Sounds are constructed with either one or two of the source wave samples. From the patch editor, you can pick your wave samples, set their relative volumes, set the amplitude envelope, add some phasing or chorus, and pick your LFO.

If you're like me, you'll whittle the sounds in each section down to one or two instruments that you like, so before long, your range of 128 presets will have been reduced to about 20. Then you'll be back to lusting after new sounds again. If you hope to be able to create sounds from scratch, and contort the onboard presets, you'll be left wanting.

You may well feel differently though, in which case there's no problem. The presets, and the waves they're built from, are very clear 16-bit samples, and the General MIDI spec ensures that there's a full range of sounds, making it a feasible all-in-one music machine.

However, the General MIDI compatibility does have a drawback – the standard says that certain sounds must be included, and the result is that so much ROM is used up with these sounds, that there's not much room left for anything a bit special or individual.

CONCLUSION

The One Stop Music Shop is a £350 16-bit synth module, a good £150 cheaper than it is in its studio-orientated rackmount version. It's the first board that actually works as a sound source in a normal sequencing environment. Not only does it work, but it works extremely well.

JARGON BUSTERS

- **MODULE** – a sound source without a keyboard.
- **ZORRO SLOT** – the big Amigas (1500, 2000, 3000 & 4000) use these for various expansions.
- **LFO** – Low Frequency Oscillators are employed by synthesisers to make complex sounds from simple waves.
- **GENERAL MIDI** – A revision of the MIDI standard, designed for greater compatibility between different equipment.

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EASE OF USE 91%
No messy leads, General MIDI compatible, and an idiot-proof patch editor.

VALUE FOR MONEY 87%
Cheaper than the rackmount module, and a lot more convenient to boot.

EFFECTIVENESS 82%
A complete range of bread and butter sounds, with 32 channels.

FLEXIBILITY 74%
Plenty of sounds, compatible with any sequencer, but minimal synthesis abilities.

INNOVATION 71%
MIDI sequencing made cheaper and simpler.

"An impressive low-cost General MIDI sound source – not to be overlooked."

OVERALL 81%

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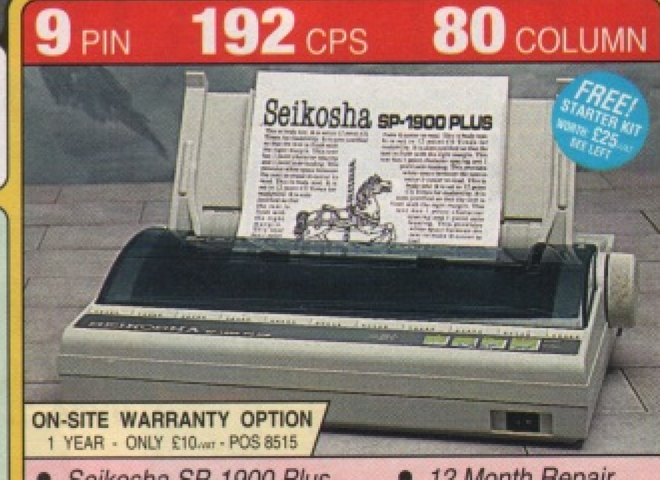


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Order v2.05

The latest program from South Hams Software should help you get your life in order, as John Kennedy found out.

Until multimedia really takes off, it's a sad fact that the Amiga needs 'serious' programs in order for it to survive in a PC-dominated world. The ability to animate graphics in real time accompanied by a four-channel soundtrack may be very impressive, but what do you do when you need to catalogue your record collection or look after your club's records?

The Amiga is well served when it comes to getting words onto paper, but spreadsheets and databases are pretty thin on the ground. So a new one deserves more than a mention, especially when it costs less than £20.

Order is a fully-fledged relational database program from South Hams Software. As it is written in-house, users' comments and suggestions can be swiftly incorporated.

Now into version 2.05, *Order* is capable of storing and retrieving enough information to run a small company. If your experiences with databases have been limited to various public domain versions of telephone directories, you are about to enter a whole new world.

FIELD OPERATOR

A database consists of many records, each of which can contain several fields of information. For example, on a computer system somewhere there is probably a huge database, with a record set aside for me. One field in this record would contain my name, another my social security number and another my preferences towards certain brands of cat food.

Each field contains a specific type of information, be it text or numbers. *Order* recognises five types – text (for names and so on), numbers, dates, times and formulas. The latter is one of the newer additions and offers plenty of scope for some interesting pseudo-spreadsheet applications.

When using *Order*, you must decide on the number of fields and their type right at the start of a project, so good planning is essential. Of course, if you do make an error of judgement all is not lost and mistakes can be corrected.

FILL IN THE FORM

Entering information is logically the next step in creating your database, but before this can be achieved you must design a 'form'. Rather like an application form, this contains various boxes into which the information is input. You select how the information is requested by dragging the fields about on the form design screen. The screen can consist of nothing more than a simple name and address request, or can be expanded to become a whopping 30-page document.

The form is then 'run', and the required information is input – unless you already have the necessary information saved on a disk somewhere, in which case *Order* can import the facts directly into the database.

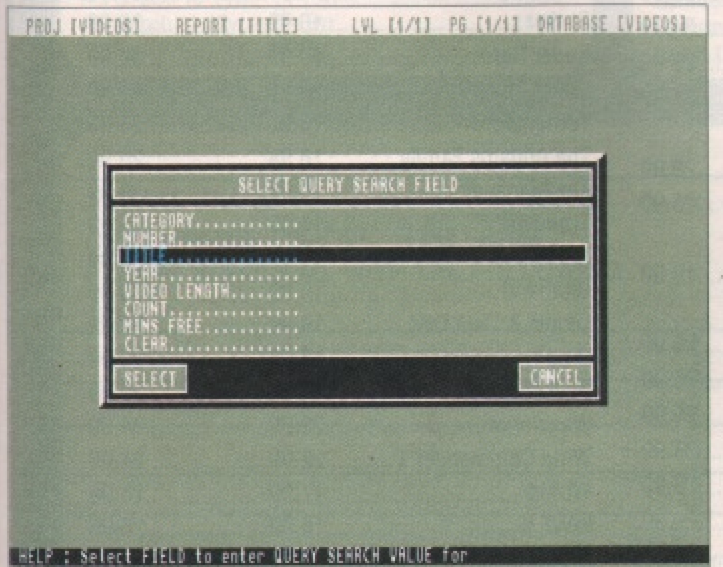
Once the information has been entered (verification is automatic to catch typing blunders) and saved the database is ready for use.

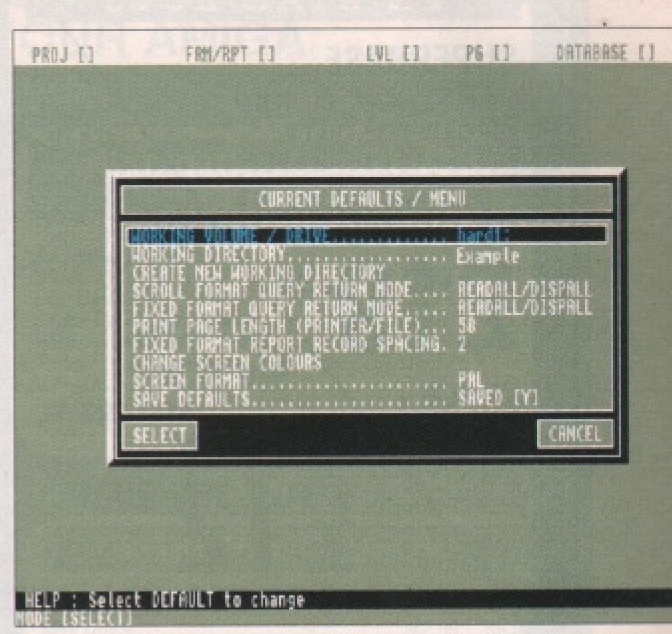
ON REPORT

A 'report' is the opposite of a form – it's used to get information out of the database. For a form to be of any real use, you need to be able to specify various conditions – for example, a commercial database may be required to reveal only those people who are below a certain age limit, with a good credit rating and with no strange preferences for cat food.

Order includes many conditions (equal to, greater than, between and so on) which may be applied to any or all fields to narrow the database search. The finished report can be displayed on-screen, printed or spooled to a text file for further processing – perhaps being incorporated into a word processing document.

With your database safely on disk, getting the facts you need means mastering the use of the query fields and the various conditions and wild cards.





The defaults menu controls not only the little things (like colours), but rather confusingly the name of the current project as well.

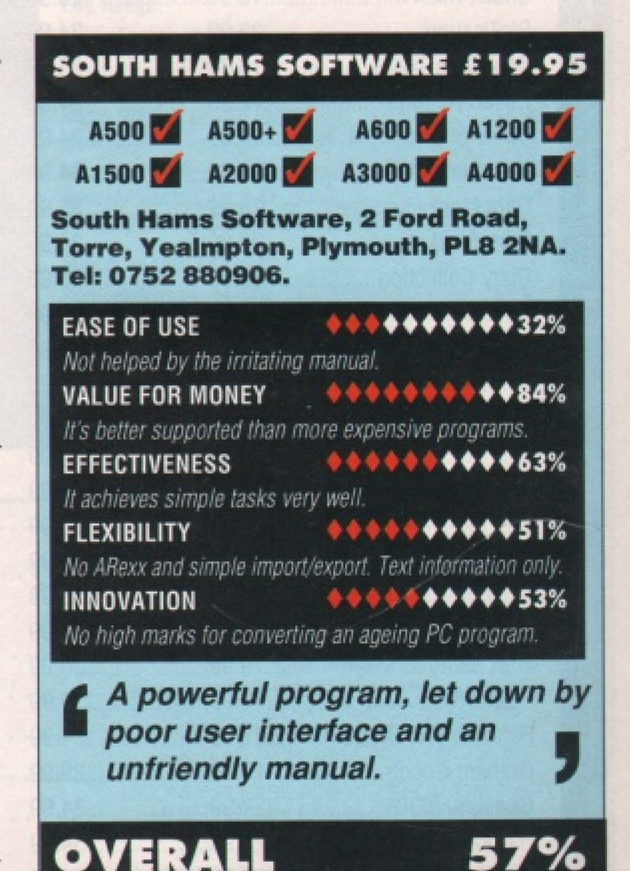
FATAL FLAW

For possibly the first time ever, *Order* presented me with documentation which was too detailed. Split into two parts, a tutorial and a reference, every feature of *Order* is examined in excruciating detail. It's impossible to read more than a few pages in one go as the microscopic detail quickly tires both eyes and mind simultaneously.

It's the manual that uncovers *Order*'s major flaw – it's too difficult. No matter how detailed the manual, if the software is hostile the user will find the task of getting to understand the program a real chore.

Order was based on a PC program and it shows. Even the requestors manage to make the Amiga look like a PC. If I had to summarise what was missing from it in one word, it would be 'Intuition' – both in the sense of user-friendliness and as the Amiga's graphical user interface.

Order certainly offers the kind of relational style database which the Amiga has been short of. If you want a reliable system for storing text-only information then it's certainly worth a try.



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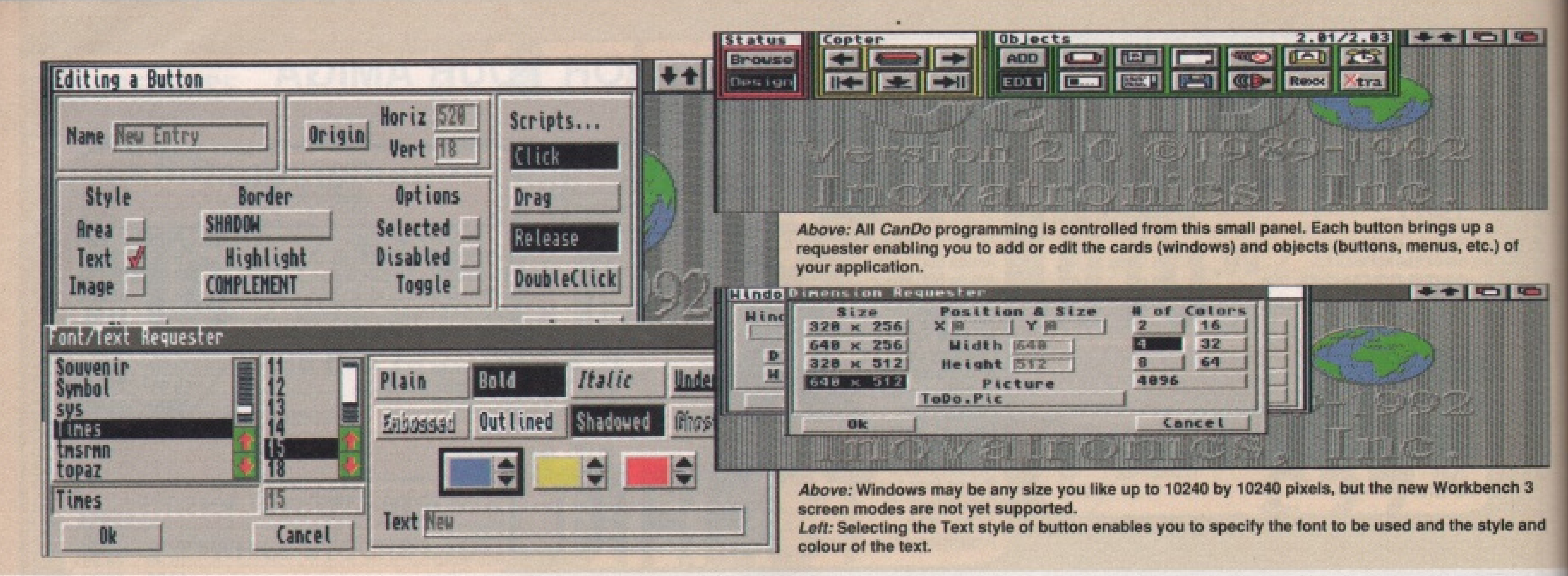
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Above: All *CanDo* programming is controlled from this small panel. Each button brings up a requester enabling you to add or edit the cards (windows) and objects (buttons, menus, etc.) of your application.

Above: Windows may be any size you like up to 10240 by 10240 pixels, but the new Workbench 3 screen modes are not yet supported.

Left: Selecting the Text style of button enables you to specify the font to be used and the style and colour of the text.

Cando 2.0

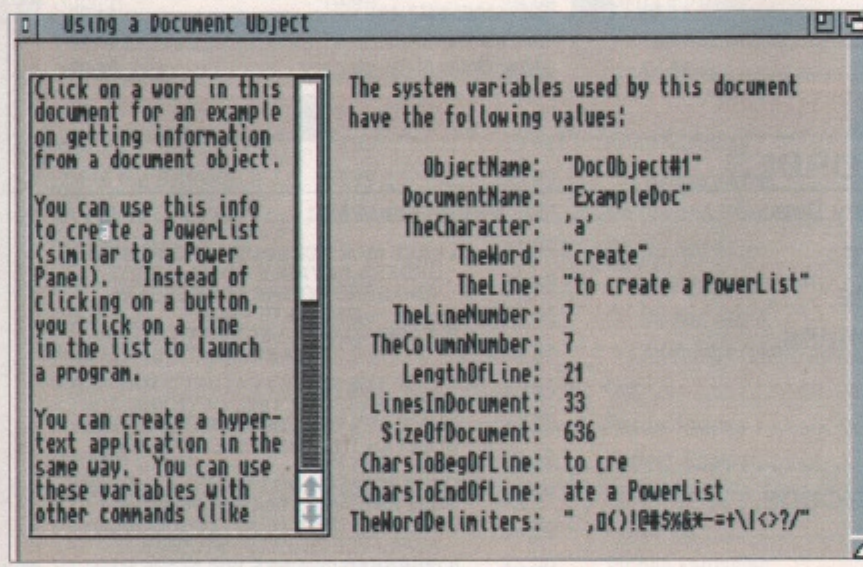
If you've always wanted to create your own programs on the Amiga with the minimum of fuss, Jeff Walker's here to tell you how it's done.

CanDo is not a programming language, it is a 'software authoring system'. There is a difference. With a programming language – like BASIC or AMOS or C or whatever – the person who is writing the program has to 'invent' line after line of programming code, often many hundreds of lines to achieve a very simple job.

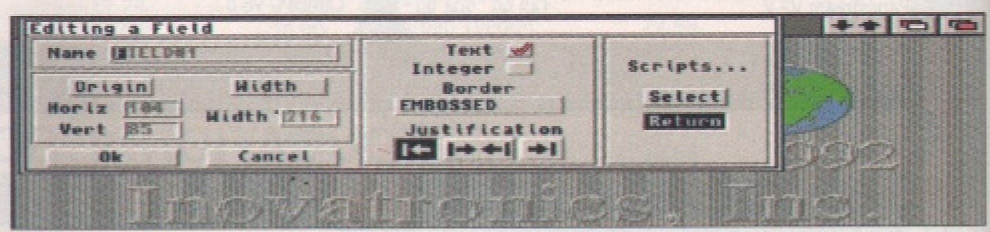
Just about every person who buys a computer has a secret dream of themselves, or the sibling for whom the computer was bought, becoming a programmer. The projected image is that once you know how to program you can make a computer do anything. And, once you can do that, people will pay you lots of money to make their computer do what they want it to do.

You can. And they will.

But what they don't tell you in the shop when you buy a computer is that learning to program it, in any language, means a lot of hard work. And that's why 'software authoring systems' were invented.



CanDo's 'document' system makes it easy to read and manipulate data.



Field objects may use only the topaz8 or topaz9 fonts, which is an awful restriction if you are designing an application to run on an interlaced screen.

THE WRITE STUFF

The idea behind software authoring systems is that the 'author' of the software (that's you) doesn't have to know very much at all to start with about functions, commands, expressions, sub-routines, syntax and a whole dictionary of other jargon words, in order to 'write' a program. Instead of typing in lines of code, you use buttons and gadgets and requesters to tell the authoring system what it is you want the software to do, and the authoring system writes the necessary code for you.

In a way you are sort of writing the software backwards. You design the interface – the windows, buttons, fields, menus and so on – and then one by one you decide what action will be performed by your software when the person using your software clicks on one of those buttons or types a value into one of these fields or selects one of those menu items.

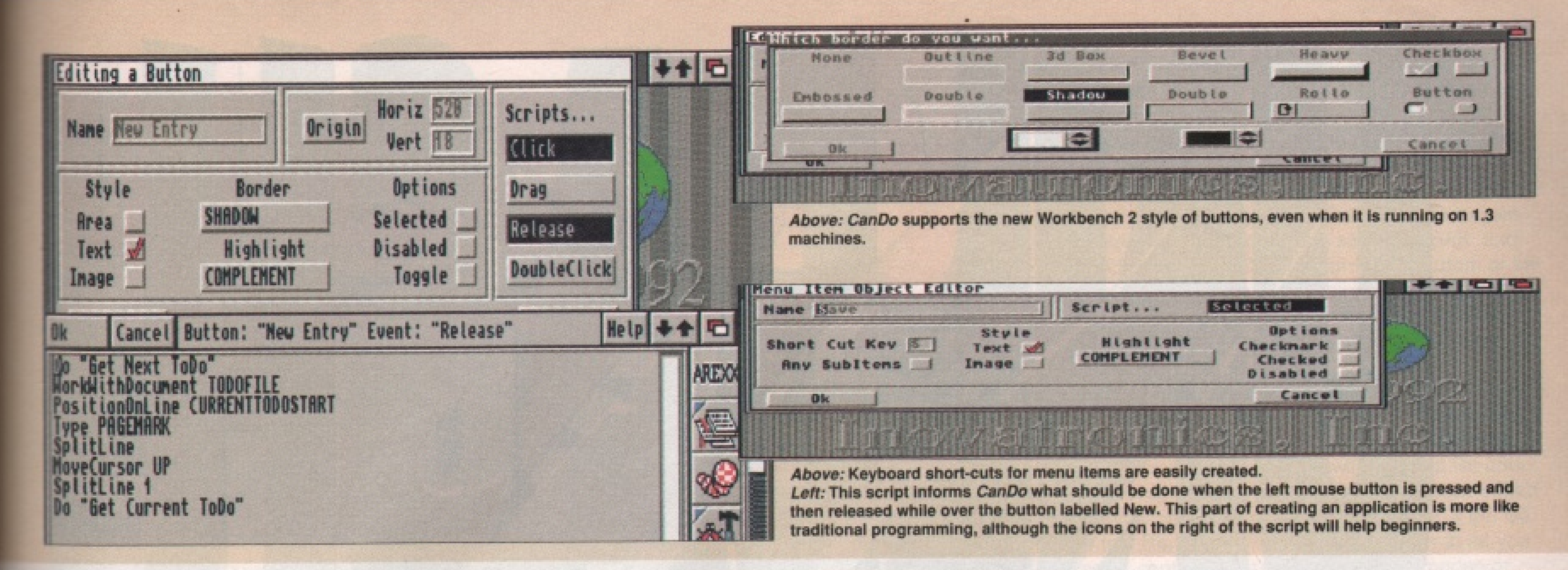
All this designing is done with the mouse. For instance, after instructing *CanDo* that you want to create a button you are first requested to drag out the approximate size and position of your button. Then a requester appears that enables you to enter the details of everything to do with that button – the type of button, its position and dimensions, its normal appearance, its appearance when selected, and what action should be performed.

This is where *CanDo* gets more like actual programming, because the action that will be performed is described in a 'script', which is one or more lines of BASIC-like code. However the script editor has many features that enable scripts to be written by selecting more options from more requesters. For instance, if your software is supposed to show a picture when the button is clicked, then in the script editor you can click on the Show Picture button, which brings up a file requester to enable you to select the picture. After selecting and pressing OK, the necessary code to load and display that picture is inserted into your script.

Clicking OK buttons a few more times to get back to the main *CanDo* display, what you have

JARGON BUSTERS

- **HAM: Hold And Modify mode — a cunning swiz which allows 4096 colours on the screen in low res mode (or in any mode on AGA machines.**
- **ASL Library: A library of code supplied with newer versions of Workbench, which includes much more advanced requester routines.**
- **ARexx: A macro scripting language, supplied with Workbench 2.0 and up, which enables interprocess communication.**



Above: *CanDo* supports the new Workbench 2 style of buttons, even when it is running on 1.3 machines.

Above: Keyboard short-cuts for menu items are easily created.
Left: This script informs *CanDo* what should be done when the left mouse button is pressed and then released while over the button labelled New. This part of creating an application is more like traditional programming, although the icons on the right of the script will help beginners.

after literally 60 seconds of 'programming' is a standard Amiga window with a standard Amiga button in it, and when you click that button a picture is loaded and displayed.

CanDo applications are designed from the user-interface backwards – first you get your buttons and menus and whatever in place, then you decide what each 'object' (as they are known in *CanDo*) is going to do when activated by the user.

This breaks down the task of writing a piece of software that does many things into manageable chunks that not only can you hold in your head, but you can actually see on the screen – you can concentrate on getting one object working properly before passing on to the next. It also enables you to easily add a feature to any application you have developed as and when that feature is needed.

YOU CANDO IT

When you open the *CanDo* package and discover the 400-page manual you'll immediately realise that it can't be 'as simple as that', otherwise all that documentation wouldn't be needed. One quick flick through the manual is enough to scare the pants off the 'non-techie', which is why it starts with a couple of step-by-step tutorials. But after completing these, which will take you about a couple of hours, you'll realise how quickly and easily applications can be created in *CanDo* that would take maybe days, weeks or months in a traditional programming language.

The second tutorial, for example, is a simple database that has buttons to add and delete entries, plus search, sort, load and save functions. After about an hour you have created a fully functional and useful piece of software that looks good and even has special features like keyboard short-cuts for menu items.

CanDo is able to load and play IFF-ILBM brushanims and IFF-8SVX sounds, and noises can be quite easily coordinated with motion – so if you had an anim of a grandfather clock you could, for example, add 'tick' and 'tock' noises at each end of the swing, and even a 'swoosh' in the middle if you wanted.

SUPPORT

Many of the Workbench 2-style features are supported and can be incorporated into your applications even if you are still using 1.3. Alas, some of the most useful Workbench 2 features are not present. Recognition of default system fonts, for example. Although *CanDo* enables you to load and use any font for use in rendering buttons and menus, fields (the gadgets you type things into) can use only topaz8 or topaz9, depending on whether you selected an 80-column or 60-column display in Preferences. Amiga owners who have never seen Workbench before version 2.04 won't know what on earth this means, because the 60/80 column display feature was one of the Workbench 1.3 Preferences options that was thrown out with the bath water.

Being restricted to using topaz8 in fields may be important if your application is designed to run in interlace mode because that font is horribly small in that screen mode

SCREEN SCENE

Talking of screen modes, these aren't supported properly either. In fact, the whole question of screen modes is only indirectly supported in as much as you specify the window dimensions and number of colours, and *CanDo* automatically creates a screen in the necessary mode, or it opens on the Workbench if you want. Window sizes can be anything up to 10,240 by 10,240 pixels, although this is the theoretical maximum of course – in practice you'll be restricted by how much graphics or Chip memory you have available.

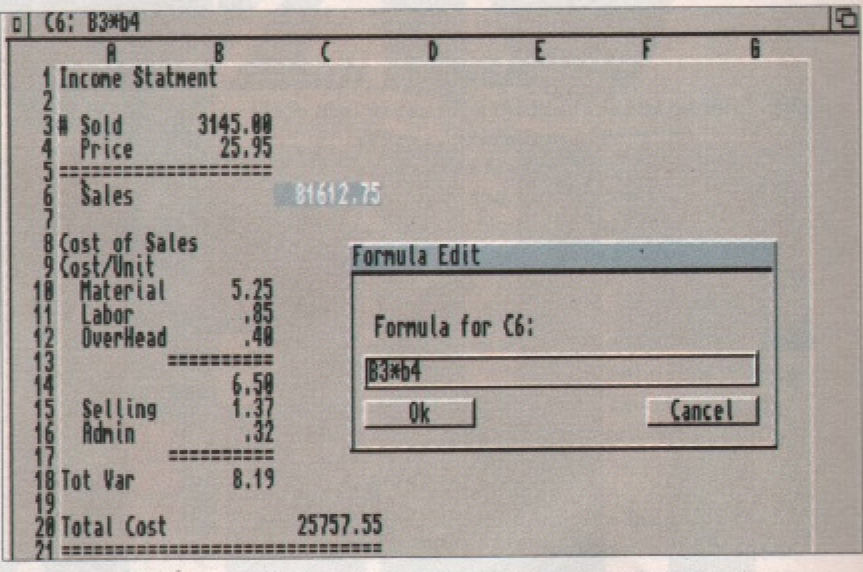
The new Workbench 3 features are not yet supported. The maximum number of colours you may specify for a window is 4096 (HAM). There are no 256 or 128 colour options, and although there is a 64 colour option this is actually Extra HalfBrite mode (32 real colours plus another 32 at half brightness) not 64 real colours.

Selecting a window width of greater than 320 pixels means you will be opening a High Res screen and will be confined to a maximum of 16 colours, even on an Amiga 1200 or 4000, which don't have this restriction.

CanDo has a built-in file requester that you may use in your applications, but access to the standard Amiga file requester via the ASL library is not supported.

CanDo can listen and talk to any ARexx port, enabling advanced users to write a program that can control any ARexx compatible application, or to have any ARexx compatible application control the *CanDo* application you have created. As the manual points out, you don't have to use these features, they are there if you need them and know how to use them.

With a hard drive and a couple of megs, this is the most fun you can have without Lemmings on the screen.



One of the example applications supplied wiuth *CanDo* is a rudimentary spreadsheet.



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EASE OF USE 86%
Naturally, the more complex the program you want to create, the more difficult will be the job.

VALUE FOR MONEY 82%
There's a lot to it, and the disk swapping may drive you crazy if you don't have a hard drive.

EFFECTIVENESS 77%
Both the CanDo program and applications written with CanDo run fairly slowly on a 68000-based Amiga. But with a faster processor it's fine.

FLEXIBILITY 95%
As its name suggests, there's not a lot you can't do.

INNOVATION 92%
There's nothing else quite like it for the Amiga.

"This package comes highly recommended if you want to learn about programming applications for the Amiga."

OVERALL 87%

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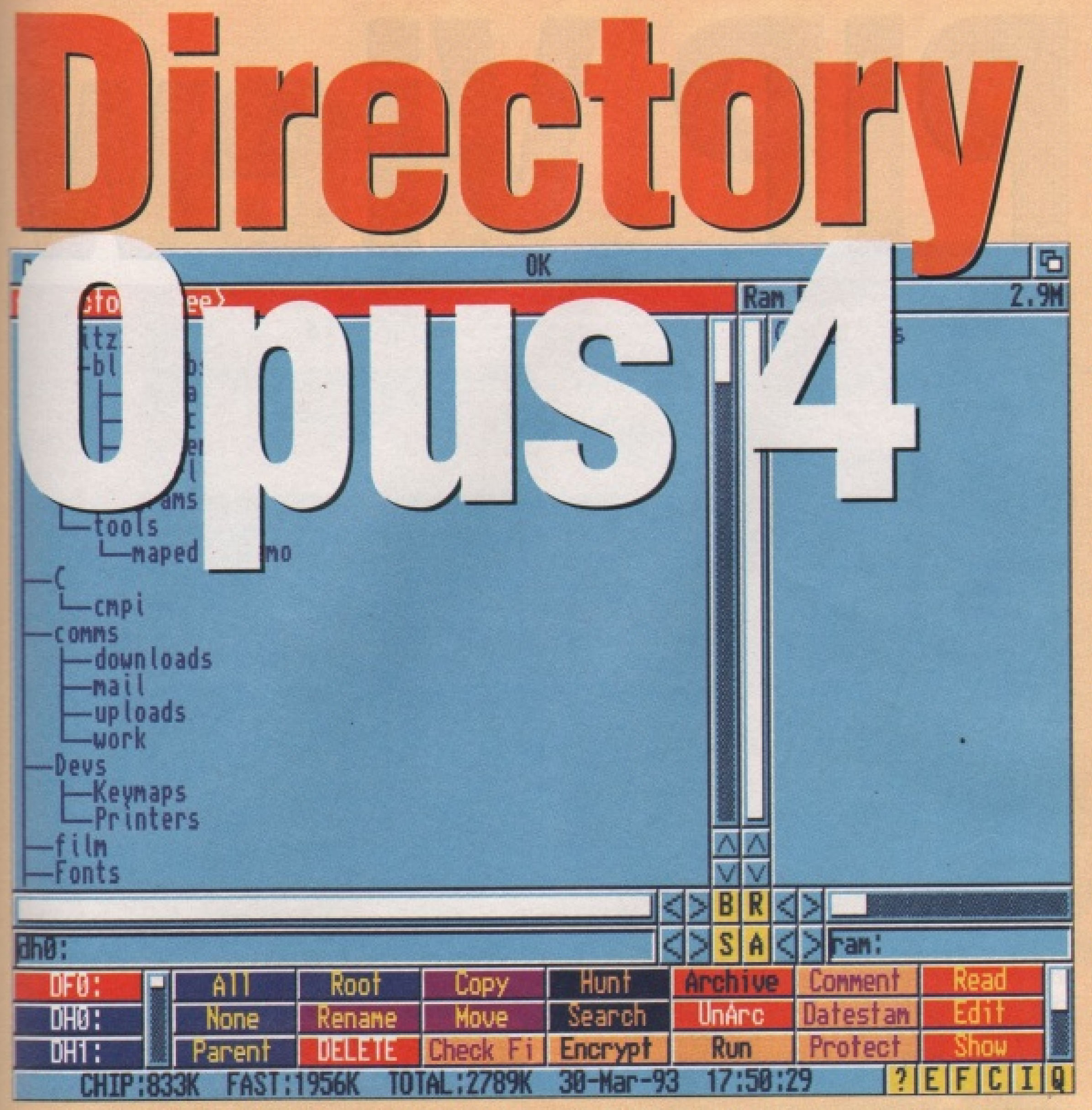
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Directory Opus 4



PC owners who have used XTree will recognise this form of file directory. *Opus* usually works with a slightly faster single directory display, but this method is ideal for examining large hard disks.

Has John Kennedy found a way to do away with his Workbench? Sssh – don't tell Sid.

Long ago when Workbench 1.3 was considered the height of user-friendliness, along came a shareware program called *SID* to revolutionise our lives. For many users *SID*'s ability to instantly view files using their name, copy and move them between directories and then launch other programs with a single click made up for most of Workbench's shortcomings.

However, shortly after the subtle blues and greys of Workbench 2 started appearing, I found that I had stopped using *SID*, simply because the new and improved Amiga environment was so powerful that I rarely, if ever, needed to load it.

One of the many configuration screens – you can alter absolutely everything about Opus that you could possibly need to.

I was sceptical of finding another utility that would be as useful to Workbench 2 users, as *SID* was to Workbench 1.3 – and I remained so until *Directory Opus* came along.

The authors may deny it, but *Opus* is *SID* reborn. What has changed is the huge number of options, the utilities provided, the ARexx support and the improved general feel – not to mention the excellent manual which a shareware program couldn't begin to compete with.

Everything about *Opus* is simple and fast. Buttons are crisp and use 3D shading, directories are quickly scanned and cached and the feel is reliable and solid.

FIRST MOVEMENT

One of the most basic ways of using *Opus* is as a file organiser. Once you start using your Amiga for anything other than games, you'll soon collect a large number of files. If you are well organised, you'll have made drawers to put these files in. If you're more like me, you will have files stored on every available floppy disk and several hard drive partitions full of data you can't even remember creating.

Although the new Workbench environment allows files to be dragged from directory to directory, it's not particularly fast. This method is also prone to the dreaded 'file drop' – when you accidentally let go of the mouse too soon and your file vanishes into an unseen drawer.

Opus simplifies the copying process, as it displays the source directory on one side of the screen, and the destination directory on the other. To copy them, you highlight them with the mouse or enter a wild card definition such as *.BAK and then click on the 'COPY' button at the bottom of the screen. Files can be treated singly or in large numbers, and other buttons are available to provide options for renaming, moving and deleting files.

SECOND MOVEMENT

The second way of using *Opus* is for running programs such as text and picture viewers. When a filename is double-clicked, it will look at a file and work out what sort of information it contains. It then applies a piece of cunning – for example, if the file is a text file, *Opus* will use its text viewer to let you read its contents. If it's a picture, AGA modes or otherwise, *Opus* will display it.

THIRD MOVEMENT

Opus also works as a quick-and-easy general utility program. Without leaving the main screen you can format disks, archive and un-archive files, check how much memory and processor capability you're using and even give files secret passwords.

But probably the best feature is its remarkable level of configuration. You can change just about everything, from the colour of the buttons to what JPEG viewer is triggered when you click on a 24-bit image. Every button, every menu and every single possible colour combination can be altered until you have *Opus* exactly the way you want it.

FINALE

Opus is user-friendliness taken to the extreme. Paradoxically, it also offers real power to the user, so both novice and expert can be sure of using it daily. If you only buy one piece of non-games software in your life, you could do far worse. CU



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EASE OF USE 87%
Clicking on buttons is a lot easier than wrestling with CLI commands.

VALUE FOR MONEY 85%
You get several utilities in one piece of software, as well as an excellent manual and after sales support.

EFFECTIVENESS 90%
General file management is child's play.

FLEXIBILITY 99%
How could it be more flexible? Perhaps it could make toast.

INNOVATION 50%
This SID clone has been brought bang up to date with ARexx and AGA support.

"With Opus 4, you need never use Workbench again"

OVERALL 88%

PIP View

Roctec have just launched a new piece of video gadgetry that'll turn your Amiga into a mini editing suite. Stephen McGill focuses on the action.

Roctec are responsible for several highly innovative, low-cost Amiga peripherals. The best example yet of this innovation is the RocKey chroma-keying device which earned a CU Amiga Top Rated award of 91% when we reviewed it in October. Can they repeat their success with PiP View?

Housed in a solid, well-shielded black metal box, PiP View is a self-contained 100-channel remote control television tuner, video/audio switcher and picture-in-picture device. Although Roctec have targeted it at the Amiga market, it is generic so you don't necessarily need an Amiga to use it, although you will need a composite monitor like the 1084.

The TV tuner by itself isn't very special. Philips make and market their own model, as have Amstrad in the past and Microline who added a teletext facility to boot. No, what really stands out about this particular device is the picture-in-picture facility.

The rear panel houses an array of phono sockets. This set-up lets you connect the unit to three independent video sources. There is only one output, which is intended to feed a monitor or video recorder. The input sources could be any device capable of outputting a composite video signal, such as a video recorder, computer, camcorder, laserdisc, etc.

On the right-hand side of the front panel, a set of lights indicate what is going in and out from PiP View. 'Main', indicated by a red LED, lets you know which source is going to be displayed as the main picture on your monitor. 'Sub', represented by a green LED, is the sub-picture or picture-in-picture display.

The sub-picture is just like a miniature television superimposed over the main display. The sound of the sub-picture can be monitored through a 3.5mm headphone jack on the rear of the unit. Volume control on the sub-picture is limited to three settings – Lo, Med and High.

LOSING CONTROL

Swapping the sub and main pictures is as easy as pressing the swap button on the supplied remote control. However, the first gripe about the unit starts here. Other than the remote there is no alternative method of controlling the unit. Some manual buttons on the front panel at least would have been appreciated.

Unlike the old picture-in-picture video recorders, versatility is the name of the game with PiP View. You can select the TV tuner or any of the three video inputs as the main display or sub-display, giving 16 possible combinations of picture-in-picture output. It's worth mentioning that each of the video inputs also have corresponding linear stereo audio inputs, the sound being switched with the picture. If you're into Desktop Video, PiP View's ability to effortlessly switch between video sources could be of immense value.

Advanced video editors use a method known as A/B roll editing. This basically means that you have two video sources, or in PiP View's case three, cued up at pre-selected scenes. Rather than continually stopping and starting recorders and source machines, edits are performed two to three scenes at a time by switching between the sources.

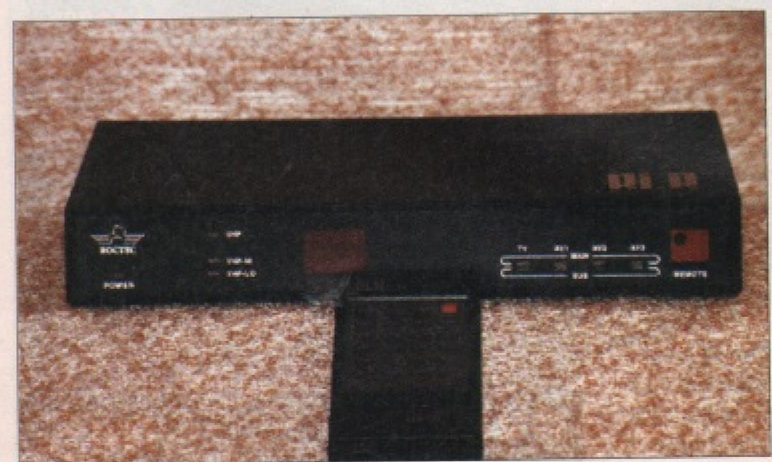
Video purists may point out that to achieve glitch-free switches in the above manner require all video sources to be house synced and time base corrected.

Nevertheless, if you have a video source from similar machines with similar signal strengths, picture roll and consequent stabilisation of image and sync can occur so quickly with PiP View that the glitch is barely noticeable (it is present though and will inevitably get worse with every generation of video tape copy thereafter).

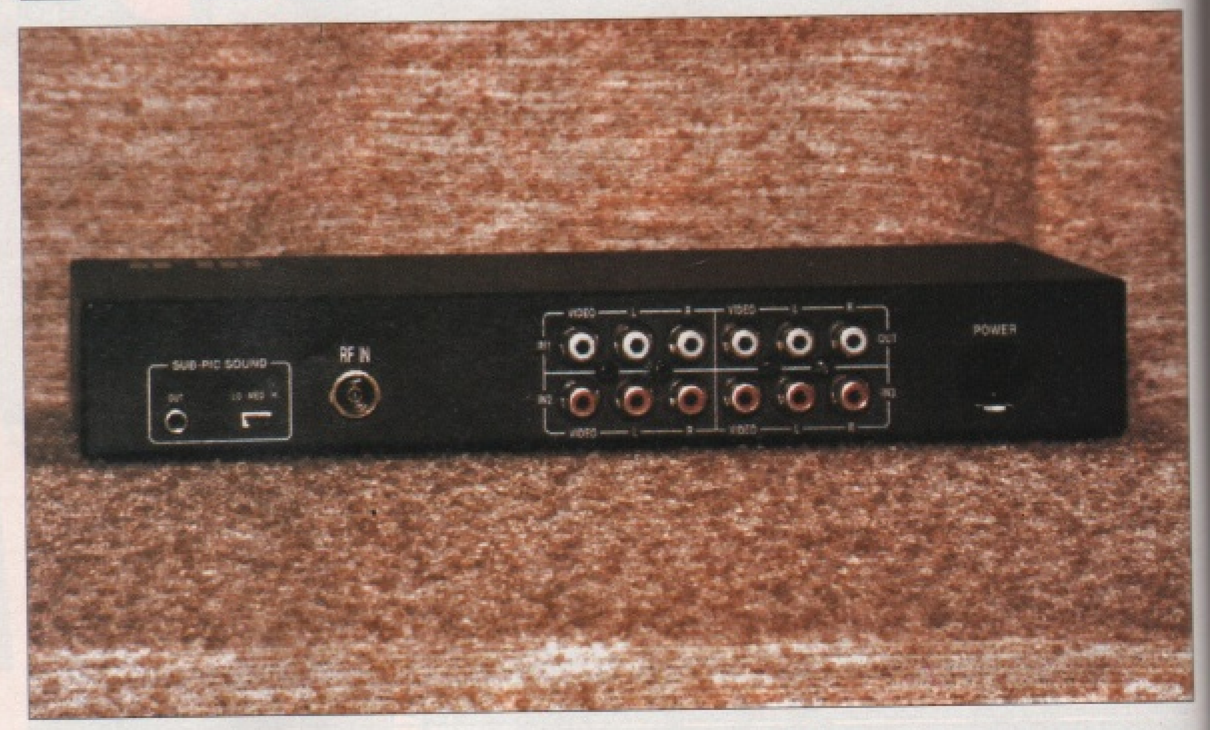
Professionalism and conjecture aside, other relevant criticism of PiP View is the positioning of the sub-picture. It can be placed in any of the four corners of the monitor screen, which is far too limiting. Amiga software control of the device could give the user the power to place the sub picture anywhere on-screen. The potential is definitely there for Roctec to create a powerful Desktop Video accessory, but it has been unrealised

CONCLUSION

Roctec have suffered from myopia with PiP View. Rather than supply the Amiga market with an awesome audio/visual switcher mixer, they have given us a plaything of limited convenience and novelty value.



The Roctec PiP device shows the quality craftmanship that we've come to expect.



If nothing else, the PiP makes a reliable TV tuner – just a shame that it only works by remote control.

JARGON BUSTERS

- Composite – A video signal where colour and brightness information is coded into a single signal.
- Glitch – A momentary break in a video signal which can cause on-screen interference and picture break-up.
- Sync – Short for synchronisation. Part of the video signal which indicates where the frame starts.

DMI £99.95

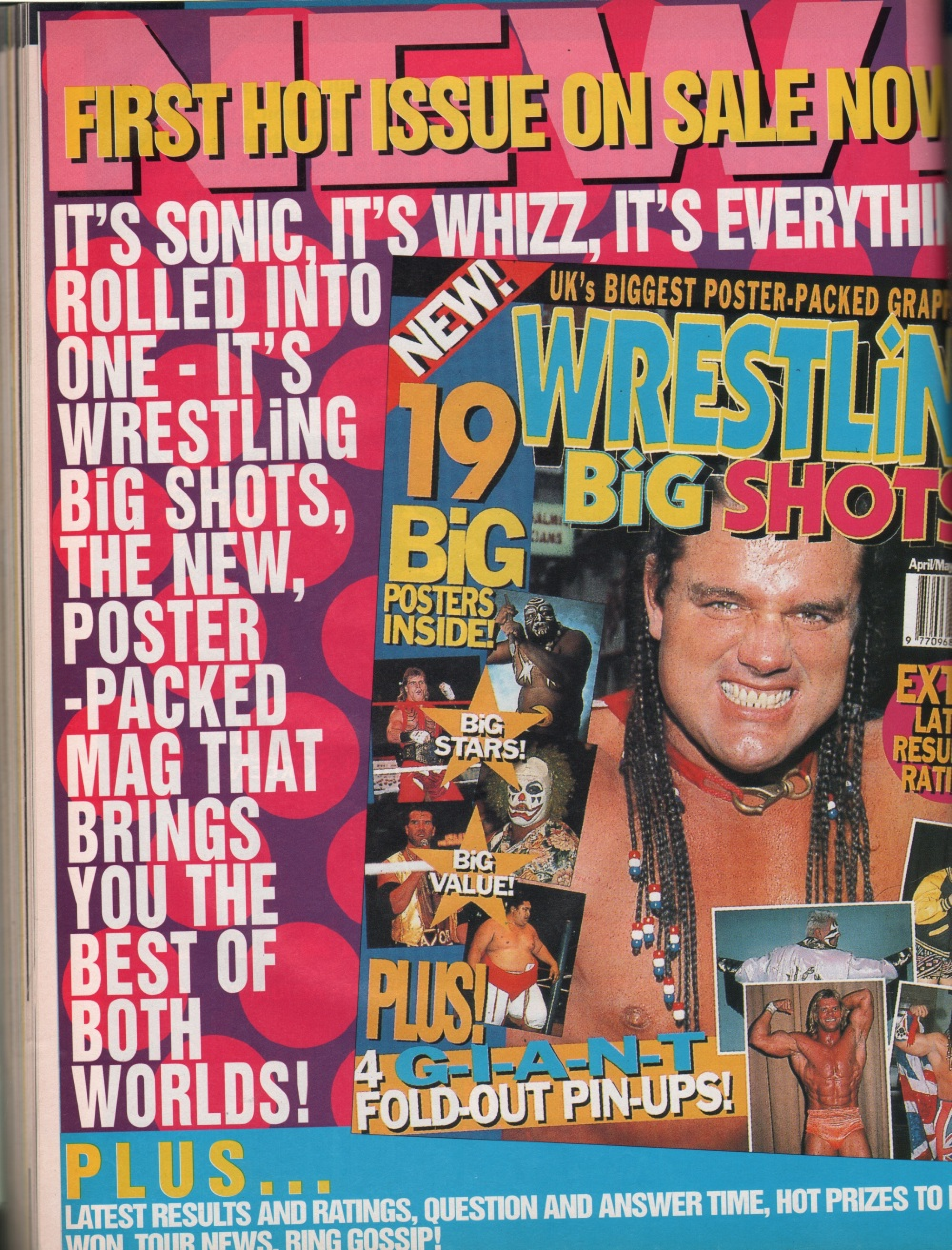
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EASE OF USE	90%
Just plug in and go.	
VALUE FOR MONEY	72%
A low price, with low performance to match.	
EFFECTIVENESS	70%
Switching is not glitch free and is of no use for 'serious' video.	
FLEXIBILITY	65%
The remote control only operation is a serious flaw.	
INNOVATION	75%
A TV tuner with some unique features.	

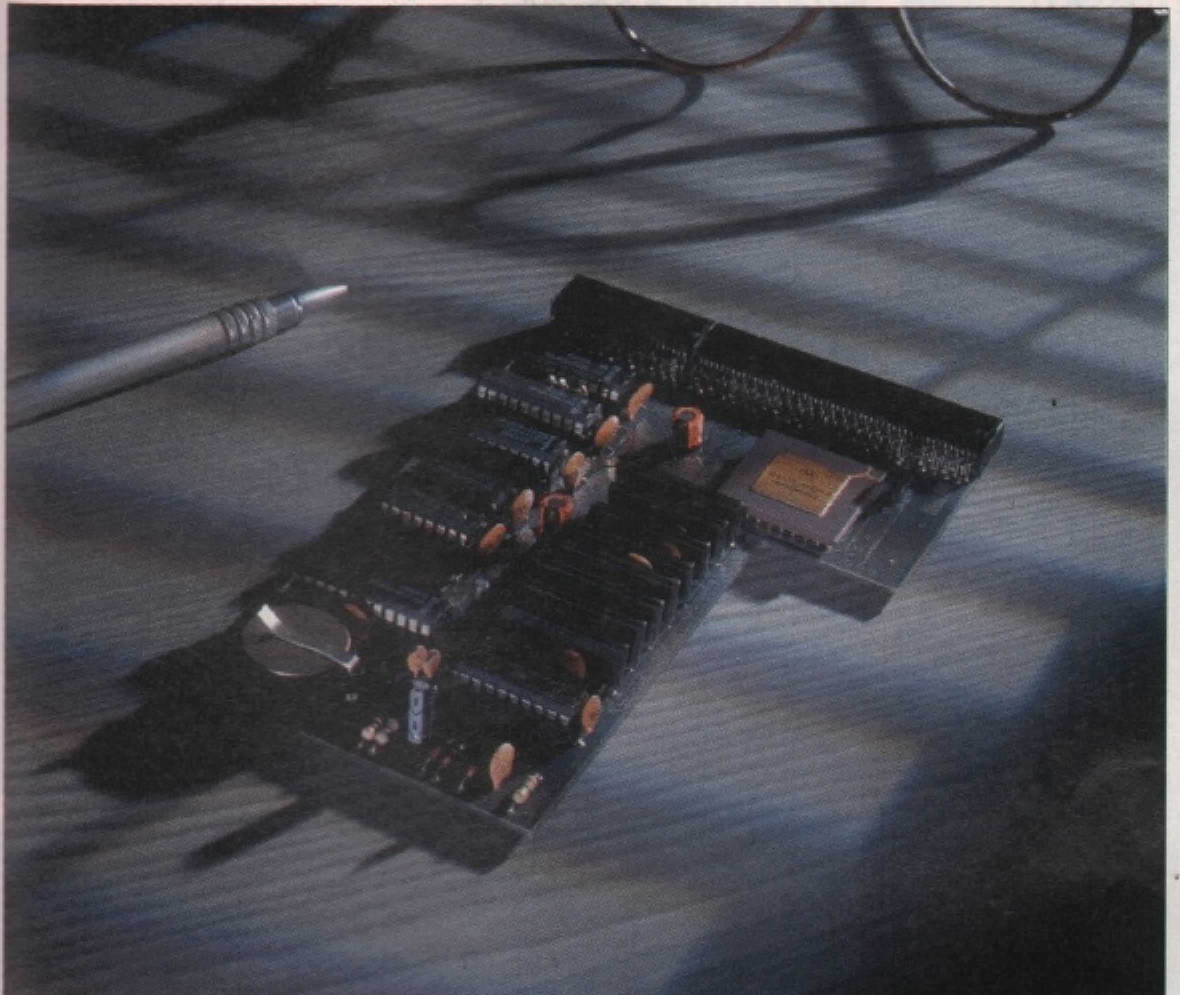
"A good idea poorly executed, leaving it with nothing more than a novelty value."

OVERALL 70%


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Power A1204

Tony Horgan investigates one new powerful attachment for the A1200.



If you've just upgraded to an A1200, you're probably still reeling from the shock. The speed, the power, the compact design, the operating system, the shiny little Commodore logo – it can all be overwhelming at first. However, most A1200 owners soon regain that insatiable appetite for even more speed and power. If you can feel your techno-lust creeping up on you again, you'd better take a look at the upgrades on the market.

A few months ago there was nothing but rumour and speculation, but since then the options have been opened right up. Now there are at least three major upgrades available, the latest of which is Power Computing's A1204.

The A1204 comes in a number of variations, but each model is based around a 4Mb Fast RAM expansion and a battery-backed clock, in the form of a board that fits into the A1200's trapdoor slot. The basic model (£185.95) has just the RAM fitted. Next up the ladder is the same board, but with an additional 20MHz 68881 FPU (£259.95). Then there are three models fitted with 68882 FPUs instead. The 25MHz option retails at £279.95, the 33MHz board at £289.95, and the top of the range 40MHz model sells for £299.95.

SOUNDS GOOD

In a normal environment, sound can only be played directly from Chip RAM, and graphics displays are similarly limited to Chip memory. Commodore sensibly designed the A1200 with 2Mb of Chip RAM, without which the new AGA graphics would have been useless. However, a completely Chip RAM-orientated setup can make programs run a little slow, as maths operations are made to wait in line, while the custom sound and graphics chips get priority over everything else.

Although there's no accelerated processor on the A1204 expansion, it will speed up your A1200 in just about every area. The processor can now exchange information freely with its own batch of Fast RAM, so everything works a little bit smoother. In fact, the additional RAM more than doubles the original processor speed. This isn't quite as good as it sounds – it won't make all your applications run twice as fast, but it will give them quite a boost.

Then there are the FPUs. These are Floating Point Units, or co-processors, and assist the main processor in maths operations. Spreading the work between two chips means the job gets done quicker, and so the program runs faster. If you decide to go for the A1204 without an FPU, you can always add one later if you feel the need.

CONCLUSION

The difference in potential between a machine with 2Mb and 6Mb is pretty large. All kinds of new avenues start to appear before you, and then there's the bonus of added speed. Throw in an FPU, and you're in Amiga heaven. A good buy. CU

JARGON BUSTERS

- FPU – Floating Point Unit. A type of co-processor which accelerates programs by reducing the main processor's workload.
- CHIP RAM – Essential for graphics and sound, but programs generally run slower in Chip RAM.
- FAST RAM – The custom chips cannot access Fast RAM directly, but software routines prefer it.
- AGA – The new set of graphics chips that allow 256 colour displays, plus the HAM-8 mode.

ALTERNATIVE BUYS

MICROBOTICS MBX 1200 (£139-£619)
The MBX 1200 comes in a wider range of configurations, although an FPU is compulsory on all models. If you just want a RAM expansion, the MBX can work out a bit pricey. In fact, an A1204 with 4 Mb of Fast RAM and a 25 MHz FPU, will set you back £279.95, while the equivalent MBX comes in at £416.19.

GVP A1230 (£399-£599)
The A1230 also adds speed and RAM, but does it in a slightly different way. All models come with a 68030 processor, which accelerates the machine by about five times. The basic model has 1Mb of Fast RAM and sells for £399. For £599, you get an FPU, 4Mb of RAM and the '030 processor. The '030 makes the A1230 the best option if speed is your main concern.

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EASE OF USE 88%
A bit fiddly to install, but no worries after that.

VALUE FOR MONEY 89%
One of the cheapest upgrade options for the A1200.

EFFECTIVENESS 85%
Varies depending on the model, but the Fast RAM alone is a Godsend.

FLEXIBILITY 89%
101 uses for it. Includes a disable switch for the FPU.

INNOVATION 80%
Not the first, but arguably the best.

"A very handy piece of kit at a low price. One of the better choices of expansions."

OVERALL 88%

External Floppy Drives

An external floppy drive can boost productivity and make life a lot easier – Tony Horgan checks out a few.

BUYER'S GUIDE

Commodore CDTV Floppy Drive

INDI DIRECT MAIL £49.99

Anyone who owned a C64 will doubtless remember the official CBM disk drive, a hulking great thing which barely improved on the speed of the tape deck. The original Amiga drive wasn't much smaller, but now Commodore have brought out a new, slightly slimmed down version, designed primarily for use with the CDTV, although it's fully compatible with any Amiga.

Apart from the colour, it's the size that makes the CDTV drive stand out from the rest. Measuring 13cm across and 5cm high, it's the disk drive market's equivalent of a P-reg Volvo. Big and bulky it may be, but it looks and feels more sturdy than a lot of other drives. Then again, with its plastic case, it's bound to be more vulnerable than its steel-enclosed rivals.

Surprisingly there's no through port, so if you've got any other external drives, this will have to sit at the end of the chain. This is also the only drive around that lacks a disable switch. The dreaded 'empty drive click' is still in evidence, although it's been reduced from the intrusive level of the early drives. As far as features go, the CDTV drive is way behind the rest. It's also the largest, and unlike Commodore's old Amiga drive, it won't sit up on its side, so lack of space could be a problem.

69%



Available from Indi Direct Mail, 1 Ringway Industrial Est, Eastern Avenue, Lichfield, Staffs. Tel: 0606 43860

Roclite Drive

DMI £49.99

In contrast to the Commodore drive, Roctec's offering is the leanest drive you could hope to find. Measuring just 2.5 cm in height, this one has more in common with a Lotus Esprit than a P-reg Volvo.

The metal case is the best of any that we looked at, with no sharp corners or protruding screw heads. As for noise, there's a very discrete click when there's no disk in the drive, but not loud enough to irritate in most environments. Disk access is also pretty smooth, with a barely audible mechanism. A disable switch is included, which can be used to reclaim extra memory that the system has set aside for buffers. A through port is also included.

If you just want a no-frills external drive to cut down on disk swapping, this is definitely one of the best units around. Compact, discrete, and pretty tough. It's as cheap as any of its competitors too, and is so slim that it would fit neatly into any setup, whether you're using an A2000, an A600, or anything in between. The CU favourite.

88%

Available from: DMI, Unit 3, Poyle 14, Newlands Drive, Colnbrook, Berks SL3 0DX. Tel: 0753 686000

Phoenix Drive

PHOENIX £49.99

Rough and rugged, the Phoenix drive is housed in a tough metal case. It comes second only to the Roctec drive in terms of size, measuring 3cm tall. The usual disable switch and through ports are included on the rear panel.

Noise-wise, the Phoenix is pretty impressive, making hardly any, either during access or when it's empty. Just the most inconspicuous flutter is all you can hear. It's one of the toughest drives that you are ever likely to find anywhere, and it looks like it could probably take quite a knock without sustaining any terminal damage.

Tough as it is, the casing is not quite up to the professionally-finished standards of the Roclite drive. A pretty impressive all-rounder really. Considering that it's the same price as Power's Economy Drive, this looks like quite a bargain.

85%



Available from: Phoenix, Unit 2, York Towers, 383 York Road, Leeds LS9 6TA. Tel: 0532 350091

PC880E Economy Drive

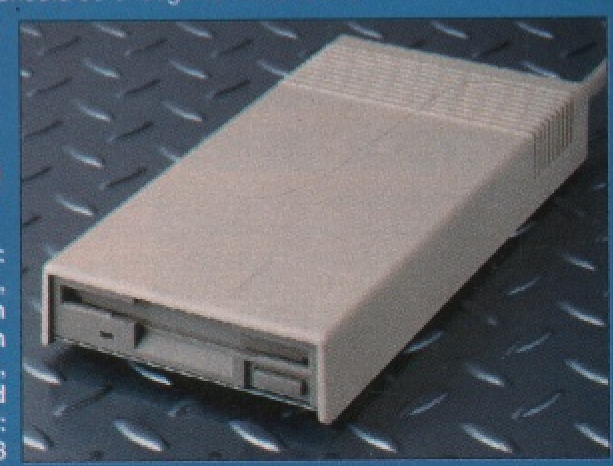
POWER COMPUTING £49.95

The name says it all really. Power's Economy Drive doesn't try to win you over with buckets of flashy features. The plastic casing isn't the strongest around, and looks as if it could give way if you were clumsy enough to drop a monitor on top of it. The eject button is slightly recessed into the front panel, which makes it a little awkward when removing disks. It's quite easy for your finger to slip off the button, which can cause the disk to stick halfway, or be sucked back into the drive, in which case it will be accessed again. If you whip it out when it's being read, you could damage the disk. The risk is only slight, but it shouldn't be there at all.

Power have their own anti-click mechanism, and it's been incorporated in the Economy Drive. The drive is silent when it's empty, and there's only minimal noise when it's accessing a disk. There's a through port and disable switch on the back. On the surface, it might look as if it's best to go for the cheapest drive around. After all, what can go wrong with a disk drive? During our tests, nothing did actually go wrong with the Economy Drive, but if you want peace of mind, you might do better to take one of the other options. Even so, the drive got through quite a session of disk activity unscathed, and that should be enough for most users.

The Economy tag is questionable, as there are superior drives around for the same price.

75%



Available from: Power Computing, Unit 8, Railton Road, Woburn Industrial Estate, Kempston, Bedford MK42 7PN. Tel: 0234 843388

PC880B

POWER COMPUTING £59.99

One step up from the PC880E is the PC880B. It looks identical to the Economy Drive, except for an extra switch at the back, and the more sturdy eject button. With the switch in the central position, the drives acts normally. Switched to 'A' though, it goes in to anti-virus mode. Now it's impossible to write to the boot-block of a disk. Bootblocks hold the immediate startup instructions on auto-booting disks, but they're also a favourite hiding place for viruses. If the drive won't write to the bootblock, it's impossible to spread a virus onto any other disks. This won't stop file viruses, however.

Put the switch to the opposite setting, and you activate the Blitz hardware that's tucked away inside the case. This is intended to be used with the Blitz backup software that comes free with the drive. The software reads the disk in DF0:, and does its best to copy it to all other available drives, which is handy if you need to make multiple copies. The menu has options for copying ST and PC disks too, as well as an option for copy protected software, although it's some way behind the protection of most current games.

Available from: Power Computing, Unit 8, Railton Road, Woburn Industrial Estate, Kempston, Bedford MK42 7PN
Tel: 0234 843388





PC880B with Cyclone

POWER COMPUTING £75

Currently the best drive if you want to backup protected disks, this is very similar to the standard PC880B. Instead of the Blitz hardware, there's something called Cyclone. Like Blitz, Cyclone allows a lower-level copy than usual, but it also backs up a lot of current games. When used with the appropriate software, which is part of *X Copy Professional*, it can take up to 15 minutes to duplicate a disk.

Unless you are already a registered owner of *X Copy Pro*, you'll have to buy the software separately. If you are registered, Power need proof of purchase of *X Copy Pro* before they can sell you the drive. The developers have been very good at updating the software in the past, and should continue to do so for the foreseeable future. This is an excellent software and hardware combination, that should come in particularly handy for anyone who needs a powerful copier on a regular basis. Remember though, that protected software is copyrighted, and piracy is illegal.

Available from: Power Computing, Unit 8, Railton Road, Woburn Industrial Estate, Kempston, Bedford MK42 7PN.
Tel: 0234 843388

91%



Dual Drive

POWER COMPUTING £125

One drive not enough for you? The Dual Drive gives you two in one. Both act independently, but the main advantage is that they're all contained in one neat unit. The drives are actually PC880Bs, with their own independent disable switches, and they also come with the Blitz hardware and software. If you need to make multiple copies of disks, or you're currently being driven up the wall by constant disk swapping, the Dual Drive will make your day a lot easier to face.

Strangely enough, it would be cheaper to buy two PC880Bs separately. Surely if you're buying two, there should be some saving? Do it this way and you'll end up spending an extra fiver. Whether it's worth paying extra to have the drives permanently locked together is up to you. The disadvantage you have with the two-in-one unit is that if one goes wrong, it's odds on that the other will be put out of action until you've put the thing back together, or got it back from the repair centre. Even so, if you can sort out a deal, the Dual Drive will serve you well, and should put a little neatness into your computer set-up.

Available from: Power Computing, Unit 8, Railton Road, Woburn Industrial Estate, Kempston, Bedford, MK42 7PN. Tel: 0234 843388





HOW THE DRIVES COMPARE

DRIVE	CDTV	ROCTEC	PC880E	PC880B	PC880B + CYCLONE	DUAL DRIVE	PHOENIX
External Power	no	no	no	no	no	yes	no
Disable switch	no	yes	yes	yes	yes	yes	yes
Height (cm)	5	2.5	3.5	3.5	3.5	6.5	3
Width (cm)	13	10.5	10.5	10.5	10.5	10.5	10.5
Through port	no	yes	yes	yes	yes	yes	yes
Price	£49.99	£49.99	£49.99	£60	£65	£125	£49.99

BUSINESS SOFTWARE



Thin on the ground they may be, but some Amiga business packages definitely deserve a second look, as Nick Veitch discovered.

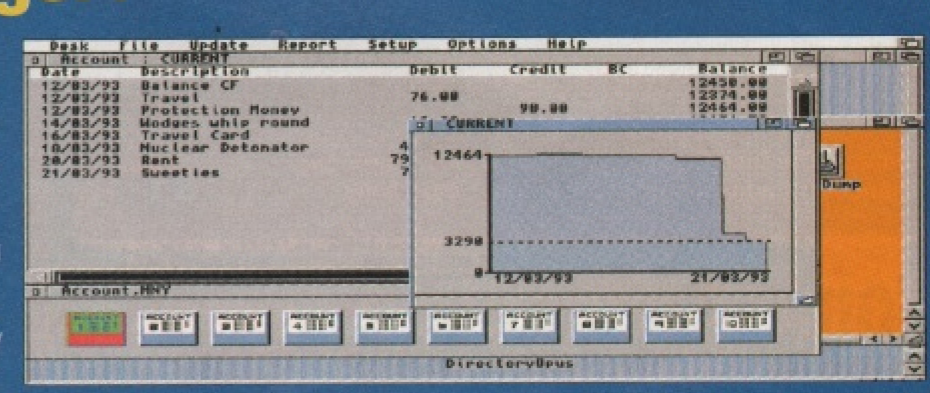
There was an American President who once got elected chiefly through the use of the slogan: 'The business of America is business'. Well, the business of the Amiga certainly is not business. It wasn't originally designed as a business tool, but then again many of its design features lend themselves quite well to the demands of those who wear suits.

The trouble is that because of the market perception of the Amiga as a games/leisure machine, not a lot of people are aware of the potential that it has in the realms of business applications. Nevertheless, there are a number of financial and other business packages available for the Amiga these days, and some of them are pretty damn good, so let's take a look at a selection.

Personal Finance Manager+

MICRODEAL £14.95

Microdeal's *PFM+* does not really enter into the corporate arena. As its name suggests, it's intended primarily for personal use – managing cheque accounts, keeping on top of standing orders and so on. Although there are more than a few chequebook style programs available, mostly in the public domain, there are few which come anywhere near the ease of use of *PFM*.



Essentially the program acts like a duplicate of your bank statement. Credits and debits are added on to your balance to give you a rolling total so you are always up to date with your balance. Or are you? How many times have you gone to a cashpoint machine and discovered to your surprise that you had more money than you thought you had? This is usually not due to a bank error in your favour, but more likely someone has been too lazy to cash the cheque you gave them last month, so if you do take some money out a couple of days later you get a phone call from the bank manager. *PFM* has a special mode to save you from this sort of hassle. By feeding the software your balance according to the bank, the program will attempt a cheque reconciliation, which has a fair chance of identifying precisely which cheques you have written which have not been cashed.

Contact: Microdeal PO Box 68, St. Austell, Cornwall, PL25 4YB. Tel: 0726 68020

90%

Arena Accounts

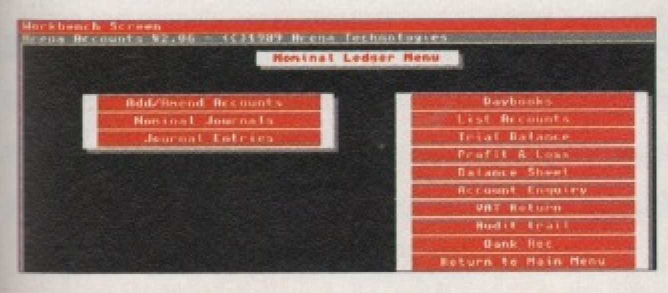
APPLIED SYSTEMS GROUP £89.95

This is a full accounts handling package, for use in a small or medium business. Accounts are built up in a system of ledgers, which is the way most businesses keep track of their money.

The accounts are basically split into three ledgers, one each for sales and purchases and a further one called the nominal ledger. Each of these can be probed for account status and individual invoices or groups can be separated off for close inspection.

Arena Accounts has every feature that you would find in a similar PC-based package, but that is part of the problem. The Amiga is not utilised to its full capabilities by this software, which is rather badly programmed. There is very little use of the menu, the print facilities are just a straight dump to the printer – which may be all right for a brainless PC user, but is alien to the Amiga way of doing things.

Aside from that the manual is not much use. There are plenty of examples, but it gives the impression that it was written by people who don't really understand the Amiga. The result is that it goes through painstaking detail on how to use menus and move the mouse, but rather skips over the detail of what the program is actually doing. If you have an MSc. in business management you might be able to work out how to use this package.



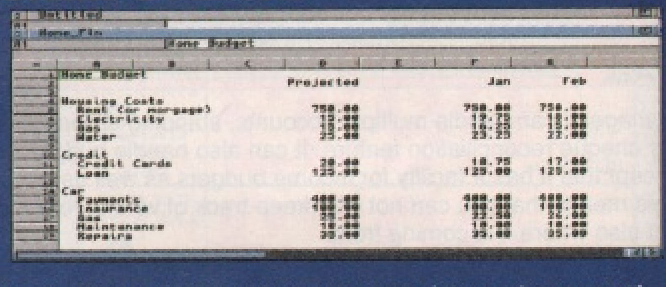
Contact: Applied Systems Group, The Flarepath, Elsham Wold, Brigg, South Humberside DN20 0SP. Tel: 0652 688330.

63%

ProCalc

SILICA SYSTEMS £129.95

This is Gold Disk's successor to their award-winning *Advantage* spreadsheet. The real power of the program remains unchanged – it's still lightning fast with a very impressive array of pre-programmed functions. As well as almost every financial calculation you could possibly think of, there is also a wide range of statistics operators.



The main improvements in the software have been made to the user interface: it now supports ARexx macros, which are not only incredibly useful for performing calculations within the program but can also be used very effectively for outputting graphs. Individual cells can be assigned ARexx scripts, which they will run when they are double-clicked – you can effectively create a control panel built into your spreadsheet.

The graphics functions are some of the best available – virtually any type of graph can be drawn, and if you really want a three-dimensional scatter pie bar-chart you can probably manage it. Instead of opting for a half-hearted display designed for the screen, these graphics routines are quite capable of producing presentation quality artwork. The graphs can even be exported in *Professional Draw* clip format for use in a DTP package.

Contact: Silica Systems, 1-4 The Mews, Hatherly Road, Sidcup, Kent. Tel: 081 309 1111.

82%

»

» # Maxiplan 4

THE DISC COMPANY £49.99

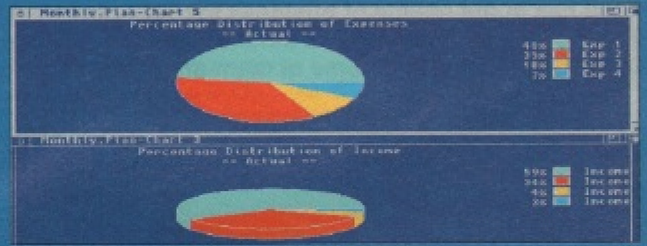
Maxiplan is another finance package which has drawn on the world of PC spreadsheets. It has the usual tables of columns and rows for inputting text and formulae. The screen is scrolled in the normal way using sliders and arrows and the mouse can be used to select cells or construct complex formulae which take values from other parts of the worksheet.

But *Maxiplan* has hidden power. As well as the normal spreadsheet functions it can also act as a database, storing data such as names and addresses in specially allocated cells.

Its charting ability exceeds even *ProCalc*'s. It doesn't produce smooth 3D high-quality results, but it can handle even more different types of charts, including Gantt charts (used by project managers), Hi-Lo (used in the city to track share prices) and even a straight X-Y plot which can draw shapes from co-ordinate data.

Maxiplan will also load and save files in *Lotus 1-2-3* format, which could be extremely useful for people who want to take their work home with them.

There are a number of practical features, like the talkback speech option, which reads the numbers back to you as you type them in.



The only flaw is the complexity of the software – it would take a novice a while to get to grips with it.

Contact: The Disc Company, B.P.40, 92101, Boulogne-Billancourt Cedex, France. Tel: 010 331 4910 9995

81%

Home Accounts 2

DIGITA INTERNATIONAL £54.99

The original *Home Accounts* was released over four years ago to almost instant success. It was by no means perfect though. There were severe limitations to the number of transactions and different types of expenditure that could be calculated. On top of that the user interface was a bit cumbersome.

All these drawbacks have been solved with *Home Accounts 2*. The interface in particular underwent a major overhaul. In the end it has turned out looking rather like *Wordworth* (which isn't that surprising since it comes from the same company).



Like *Personal Finance Manager* it can handle multiple accounts, standing orders, and has a very similar cheque reconciliation feature. It can also handle budgets in the same way, except that it has a facility for income budgets as well as expenditure budgets. This means that you can not only keep track of where your money is going, but also where it is coming from.

In comparison with *PFM* it is perhaps a little more cumbersome, although ultimately more flexible. It is the ideal package for anyone running clubs, societies or anything that requires just a little more than a simple up-to-date balance statement.

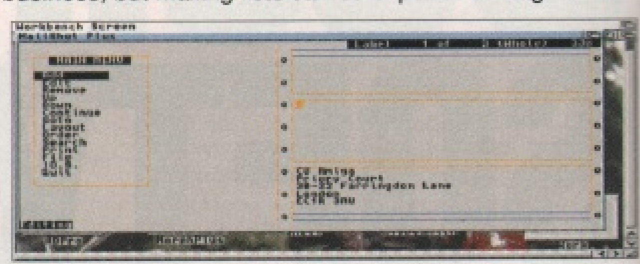
Contact: Digita International, Black Horse House, Exmouth EX8 1JL. Tel:0395 270273



Mailshot Plus

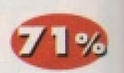
DIGITA INTERNATIONAL £39.99

This program is not exactly a financial package, but it could save you a pile of dosh. It is, as you may have guessed, a mailing list handler. It is easy to overlook this aspect of a business, but mailing lists can be expensive things to set up and run. Even with a short list of 100 names and addresses, it would be very time-consuming to write out all the envelopes by hand. A computerised list saves time, but can itself lead to extra expense if not properly managed.



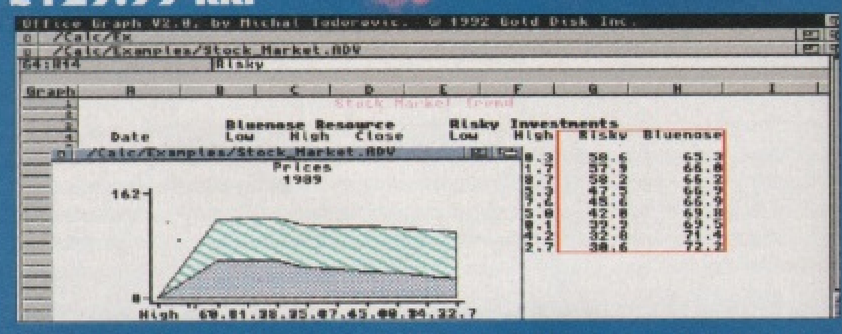
Mailshot has excellent search facilities which scan each field of the address so you can find anyone, even if all you can remember is a bit of their postcode. There is also an automatic anti-duplication function which removes any duplicates of labels in your list – saving money and the goodwill of your customers. The software is showing its age. There are no proper requestors and everything looks rather PCish, but it is still a useful addition to your business armoury.

Contact: Digita International, Black Horse House, Exmouth EX8 1JL. Tel: 0395 270273



Gold Disk Office 2

SILICA SYSTEMS £49.99 (SPECIAL OFFER) £129.99 RRP



This comprises a word processor, database, spreadsheet, DTP and graphics package. The aim is obviously that you will need no other software and it is one which is almost fulfilled. All of the component parts are altered versions of Gold Disk's other exemplary software masquerading as modules.

The spreadsheet is basically *ProCalc* with a few minor differences. The most significant of these is that the graph drawing section has been separated into a completely different module, which makes drawing charts slightly more cumbersome with only the minor benefit of a slightly lower memory overhead.

The DTP package is, more or less, *Pagesetter*, complete with fonts and all. This means that the word processor doesn't need to have loads of formatting and graphics potential. The one supplied is a version of *Transwrite*, a no-frills text cruncher. The combination works quite well, as you can rattle off the text first and then load it into the DTP module to tart it up a bit.

The database is more than adequate for looking after stock or mailing lists, although it doesn't seem to have had a great deal of time spent on it.

The biggest bonus of these packages is the ability to multi-task them all on a Workbench screen and use their ARexx facilities.

Contact: Silica Systems, 1-4 The Mews, Hatherly Road, Sidcup, Kent. Tel: 081 309 1111

87%

BUSINESS SOFTWARE AT A GLANCE

	PFM	ARENA ACCOUNTS	PRO CALC	MAXIPLAN	HOME ACCOUNTS 2	MAILSHOT PLUS	GOLD DISK OFFICE
AREXX SUPPORT	No	No	Yes	Yes	No	No	Yes
LOTUS COMPATIBLE	N/A	N/A	Yes	Yes	N/A	N/A	Yes
RUNS AS WORKBENCH WINDOW	Yes	No	Yes	Yes	Yes	No	Yes
EFFECTIVENESS	83%	76%	89%	90%	81%	78%	88%
EASE OF USE	88%	56%	91%	88%	86%	69%	84%
VALUE FOR MONEY	95%	60%	78%	72%	90%	68%	92%
RATING	90%	63%	82%	81%	89%	71%	87%
PRICE	£14.95	£89.95	£129.95	£49.99	£54.99	£39.99	£49.99

RICOH PCL5 LASER PRINTER

LP1200

400 DPI • 2Mb RAM • 6 PPM • £699 + VAT

A4 TEXT/A5 GRAPHICS @ 400dpi • A4 GRAPHICS @ 300dpi. A 2Mb RAM UPGRADE IS REQUIRED TO PRINT A FULL A4 PAGE OF GRAPHICS AT 400dpi







Ricoh, the world's second largest manufacturer of laser printer engines, have used their expertise to produce a 'first' in laser printers for the world market, the LP1200 with FLASH ROM. HP LaserJet III™ compatible, the LP1200 employs industry proven laser technology. Unlike LED printers, which use light emitting diodes, the LP1200's laser light source is able to produce the most accurate and intense printed images. It has a fast efficient processor and engine, together with a straight paper path design which allows printing at a full 6 pages per minute and, it can address a range of print resolutions up to 400 dpi. The 2Mb RAM version can print a full A4 page of graphics at 300 dpi and a full A4 page of text, or A5 page of graphics, using standard resident internal fonts and the alternate controller firmware supplied, at 400 dpi. A free Windows driver supplied enables the 2Mb Ricoh LP1200 to print a typical page of text at 400 dpi from Windows 3.1, using the alternate controller firmware supplied on the Windows Driver Disk and standard internal resident fonts. The 4Mb RAM version has the added advantage of being able to print a full A4 page of graphics at 400 dpi and makes full use of the LP1200's 400 dpi printing capabilities, such as using Microsoft Windows fonts.

Unique additional standard features include FLASH ROM 'future proof' technology and LAYOUT - a powerful document description language. The LP1200's unique internal FLASH ROM, which holds the printer controller firmware, can easily be updated as new developments in technology occur. This protects the investment you make in buying a Ricoh LP1200. Other manufacturers would require you to buy a new printer! Internal FLASH ROM and industry standard FLASH ROM IC cards can also be used to permanently store fonts, macros, graphics and extra emulations. Again, unlike the competition, the LP1200 includes LAYOUT a powerful document description language as standard, which offers unique opportunities to develop custom made printing systems. Forms and document templates can be designed and stored electronically in the LP1200's FLASH ROM, alleviating the need for pre-printed forms!

The LP1200 comes complete with a 100 sheet A4 paper tray and the facility to feed single sheets of paper and card up to 157gsm. An optional extra universal feeder provides the facility to automatically feed up to 150 sheets, from sizes of 98mm x 148mm to 216mm x 356mm in size, at weights of up to 158gsm. It can also feed up to 15 envelopes, overhead transparencies and labels automatically.



CORPORATE SALES TEAM
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THE LP1200 IS A GENUINE LASER PRINTER AND NOT AN LED PRINTER. MAKE SURE YOU CHECK THE COMPETITION!

See how the Ricoh LP1200 compares to its Laser Printer Competitors

FEATURES	EPSON EPL4100	HP L/JET IIIP	M'MAN TALLY MT904+	IBM 4029 Model 010	RICOH LP1200
Average Street Price (excl. VAT) (*expected)	£569	£699	£699*	£750	£699
Official RRP (excl. VAT)	£945	£1,179	£1,099	£1,099	£1,195
Maximum resolution in dots per inch	300 x 300	300 x 300	300 x 300	300 x 300	400 x 400
Windows 3.1 Driver @ 400 dpi	-	-	-	-	YES
Print Speed	6ppm	4ppm	4ppm	5ppm	6ppm
Straight Paper Path	YES	-	-	-	YES
PCL 5 Printer Command Language	-	YES	YES	-	YES
HP-GL/2 Vector Graphics included	-	YES	YES	YES	YES
Resolution Improvement/Enhancement	YES	YES	YES	YES	YES
Standard RAM	0.5Mb	1Mb	1Mb	1Mb	2Mb
Full A4/300 dpi graphics with standard RAM	-	-	-	-	YES
Warm Up Time	<45 secs	<60 secs	60 secs	33 secs	45 secs
First Page of Text Output	<20 secs	<40 secs	34 secs	20 secs	<15 secs
Document Description Language included	-	-	-	-	YES
Flash ROM	-	-	-	-	YES
Upgradable Firmware	-	-	-	-	YES
IC Card Slot	YES	-	-	YES	YES
Scalable Resident Fonts - in HP LJ III Emulation	-	8	8	0	8
Resident Bit-Mapped Fonts	11	14	14	16	14
AGFA Intellifont Scalable Font Technology	-	YES	-	-	YES
HP LaserJet III Emulation Included	-	YES	YES	-	YES
EPSON FX Emulation Included	YES	-	YES	-	YES
IBM ProPrinter Emulation Included	-	-	YES	-	YES
Standard Tray Capacity	100	70	100	200	100
Protective cover on standard tray	YES	-	YES	YES	YES
Cost per copy**	1.65p	2.00p	1.71p	1.64p	1.65p
Min-Max Paper Weight in gsm	60-157	60-105	60-120	60-131	60-157
Able to print on OHP Film	YES	YES	YES	YES	YES
Able to print on card (157gsm - Manual Feed)	YES	-	-	-	YES
Standby -Noise Level	<40dB	31.7dB	<35dB	38 dB	<38dB
Printing -Noise Level	<50dB	43.3dB	<46dB	50 dB	<48dB

**As quoted by manufacturers - 3/4/92

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IT'S A WINNER!

Shortly after its launch, the LP1200 had scooped accolades from most of the major press reviewers . . .

"The winner is the Ricoh ... its graphics performance is staggering".
Shopper Labs Best Buy
COMPUTER SHOPPER - AUGUST '92

"We liked the Ricoh's speed, extra memory (useful for graphic printing) and full HP LaserJet III emulation with scalable fonts ... running costs, ease of use and documentation are all also good, so this is a well rounded package".
PC PLUS VALUE VERDICT ■■■■
PC PLUS - AUGUST '92

"Compact, quiet and hassle free ... excellent value ...".
PC DIRECT - OCTOBER '92

"The Ricoh stormed ahead of the other printers in mixed page tests ... was consistently the fastest non-PostScript machine in all the tests ... it produced the most impressive pages, with prints consistently clear and well contrasted ... produced some very fine prints at 400dpi".
'WINDOWS' MAGAZINE - JULY '92

COMPUTER SHOPPER BEST BUY — AUGUST '92
PC MAGAZINE UK EDITOR'S CHOICE — OCTOBER '92
AMIGA FORMAT GOLD — Dec '92
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LASER PRINTER AWARDS — What to Buy for business — A "BEST BUY" DECEMBER 1992

Consumables + Accessories

CODE	PRODUCT	PRICE Exc VAT
CAB 7500	Cable for PC/ST/Amiga	£8.47
KIT 5200	Laser Starter Kit inc Cable	£12.50
LAA 5238	Universal Feeder (2nd Tray)	£100.00
LAA 5262	2Mb RAM Module	£100.00
LAA 5210	Developer/Toner Cartridge	£65.00
LAA 5225	OPC Cartridge (Drum)	£89.00
LAA 5312	A4 Paper Tray (100 Sheets)	£35.00

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- **IC CARD SLOT** (PCMCIA/JEIDA Compatible) — For programmable FLASH ROM cards
- **EXPANSION BOARD SLOT** — For improved connectivity eg. Coax/Twinax, PC-LAN etc
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- **SERIAL + PARALLEL PORTS**
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LP1200 WITH SINGLE BIN & 4Mb RAM (LAS 5200 + LAA 5262)	£799	+VAT = £938.83

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Not exactly known for his taste in music, we decided to see if Tony Horgan could do any better with art. Here he is with this month's Art Gallery.

WRITE BACK

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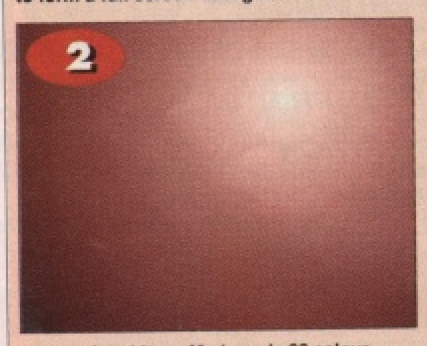
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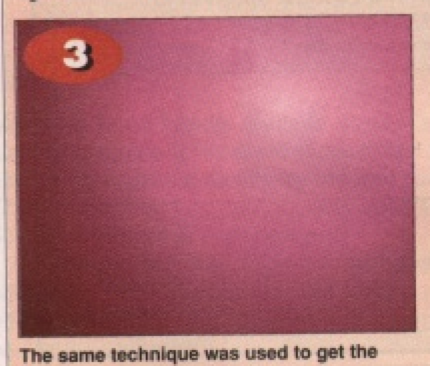
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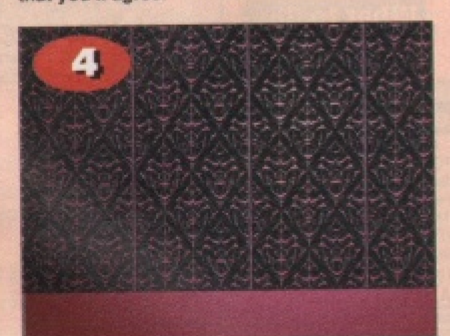
UH OH!

Mark Lockett tells us this is his first attempt at painting with DPaint AGA! 'Uh Oh!' shows off the Amiga's new 256-colour mode.


The wallpaper patterns were worked out in lo-res, mirrored, and then shunted together to form a full screen background.


Moving into hi-res, Mark made 32 colour ranges for the paper and pattern. The highlight was achieved with the gradient circle fill.


The same technique was used to get the graduated highlight effect for the pattern.

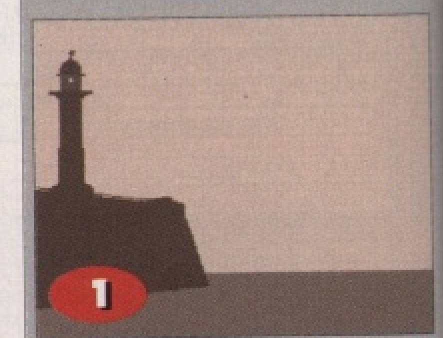

The pattern brush was loaded and stamped down repeatedly to make the wallpaper.


The background was loaded to a spare screen, then merged with the main picture.


Finally, the gremlin, which had been drawn separately by Mark, was positioned over the top of the background. We think that the end result is pretty impressive for a first attempt – and we're sure that you'll agree!

SHIP

The artist behind 'Ship' simply signs himself Hugh. The image was drawn in low resolution with a 16-colour palette, copied from a photograph of Whitby Harbour.


The palette was set up with a graduation from beige to dark brown and the silhouettes were laid down.


The ship was then dropped into the space and some shading was added to the lighthouse.

CLAUDIA SCHIFFER

Copied from a photo in a magazine, this picture of Claudia Schiffer was converted to the Amiga by Andy Nicholas, using DPaint IV in medium resolution, with 16 colours.

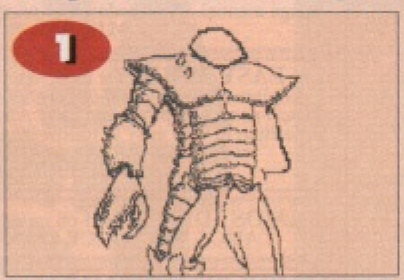

Andy started with a simple black on white outline, which would later define the various colour and shade borders.


Then it was time to put in some shading on the face. Andy says that if the face is well drawn any other mistakes aren't so obvious.

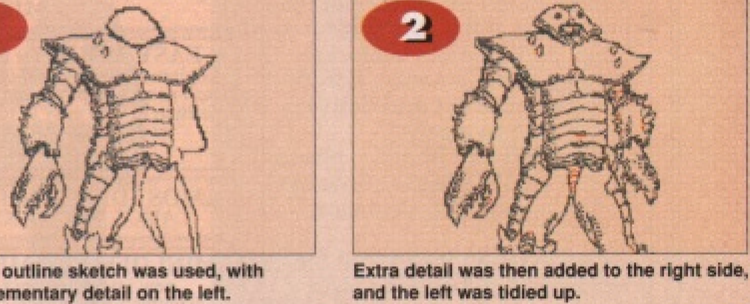


LOBSTER

This started out as a pencil drawing and was adapted for the computer screen by Yannis Ballis.



A rough outline sketch was used, with some elementary detail on the left.



Extra detail was then added to the right side, and the left was tidied up.



Graduated fills were used to colour the lobster's scales.



The sky was changed to an inky black, with the lobster given a bold outline.



Not content with a star-filled sky, Yannis finally decided on a backdrop of toxic clouds.

Here's the finished article. Hugh started to soften the rigging with *DPaint*'s Smooth option, but the definition suffered, so the shading was done by hand. Subtle reflections were added to the water, and the lighthouse was given greater depth with the railings and some extra shading.



Anchor ropes were added to the ship, which was then given depth with some shading on the bow.



The rigging was next, and the lettering on the side of the ship was shaded.





Andy added a little more shading, and then the body was nearly complete.



The hair was drawn with the dotted brush to create streaks and then glossed over with the Smooth option.



All that is needed now is a light backdrop and the picture is complete – here's Claudia in all her glory.

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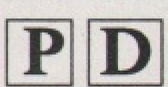
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ANDREW GOULD MULTIMEDIA DENTIST

Open wide! How do you teach a dentist to fill teeth? I mean, you can't just poke a drill in and hope. Jon Sloan takes his teeth in his hands in the search for an answer.

PROFILES

What do you get if you cross a dentist with a multimedia expert? For the answer you'd have to ask Andrew Gould as he's the riddle personified. Apart from mixing in a little dentistry for King's College and running an Amiga course for the London College of Printing, Andrew's a bit of a whiz when it comes to multimedia. He's currently involved in two projects designing multimedia database/reference sources for professional use.

How does he manage to combine all those activities into one life? Andrew is modest in his reply, 'Well, I only get a couple of days a week to work on the multimedia projects. The rest of the time is taken up by locum work at King's and other teaching duties.'

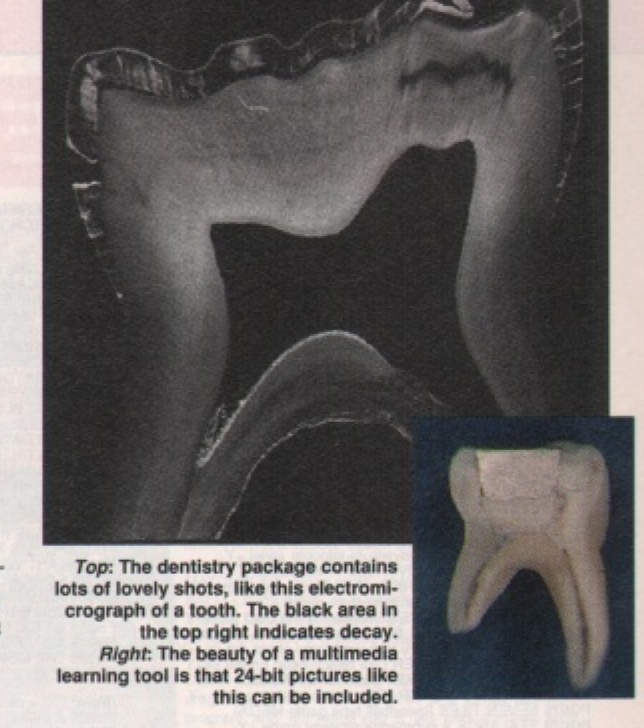


VALUABLE LESSONS

Andrew first got involved with the Amiga when King's College decided to modernise one of its teaching packages, used to teach the treatment of children's teeth. He started to work in his own time to expand the existing package to include more visual material – stills, moving film and voice-overs. It now combines text, diagrams, clinical photographs, a voice over and video into one integrated multimedia tool.

'Probably the biggest advantage in using the Amiga in this way is that the student controls the rate at which he learns. Also, the way that the student digests the material needn't be linear as they can choose to review information from any part of the package and there's a handy tracing facility which maps the route they've taken so that they can go back and reread if necessary.'

Andrew chose the Amiga because of its low cost and availability and its ability to truly multitask. After choosing the hardware, he then had to decide on the software. Not being a trained programmer he needed something that was easy to use yet flexible enough to handle all the different elements. He chose *CanDo*. '*CanDo* was just what I needed. I looked at Scala, of which I'm a great fan, but decided that *CanDo* was more appropriate in these circumstances.'



Top: The dentistry package contains lots of lovely shots, like this electromicrograph of a tooth. The black area in the top right indicates decay. *Right*: The beauty of a multimedia learning tool is that 24-bit pictures like this can be included.

Later the Dept. of Children's Dentistry, where Andrew works, was awarded funding from the Dept. of Health to convert and evaluate the software for use by practising dentists. 'This was a big break for me. Both I and my colleagues were extremely pleased with the response from the dentists.' In order to overcome the usual 'But the Amiga isn't a business machine' objection Andrew's planning a pilot launch on the CDTV this summer. Also the package has been shortlisted for the Apple Computer Prize, part of The Partnership Trust Awards, which is a scheme to encourage new teaching methods.

AMIGA GARDENING

As a result of Andrew's work with the dental project, when the National Trust needed someone to modernise their picture archives they chose him. 'I teach some multimedia Amiga courses at the London College of Printing and the course Director, Tim Stephens, has very close links with the NT. So, I guess I was the natural choice.'

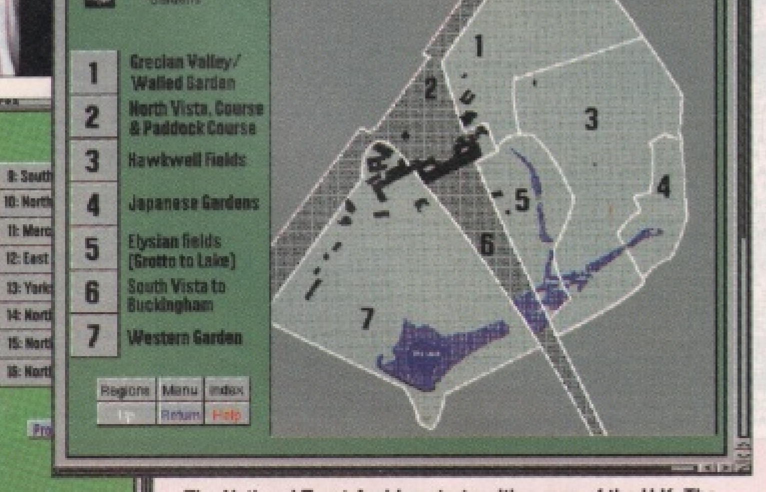
The Trust wanted some way of archiving pictures for use in reference work and in conservation projects. They needed a means of storing and comparing pictures of Trust properties to see how they have changed over the years.

Work commenced over a year ago on the pilot scheme. An Amiga 3000 with an IV24 board was chosen because of the need to display 24-bit full screen images. The screen design and user interface were considered vital because the system will be operated by Trust staff who may have little or no idea how to use a computer. In the end he used a mix of *Superbase* and *CanDo* to design a map of the U.K which could be zoomed in to specific properties.

The first stage was to set up a pilot scheme to collate information on one particular Trust property. Stowe Gardens in Buckinghamshire was chosen. It was an unqualified success, so much so that a full scheme has been implemented with seven times the functionality of the original. Also, plans are being made to convert the original Stowe scheme to be touch screen sensitive so that it can be used by visitors. Commodore in turn are arranging to supply A4000s to various key NT properties for further evaluation of the scheme.

It's thanks to guys like Andrew that the Amiga will continue to thrive as something other than a games machine. With his help the Amiga is becoming established within two major institutions as a serious business tool.





The National Trust Archive starts with a map of the U.K. The researcher then clicks on a selected area and is given an expanded map of that section.



United Public D

The innovators

Look out for the CLR logo!

THE BEST SELECTION OF PD IN THE UK !

GAMES

PG003 AIR WARRIOR Good flight Sim + (not A600!)
PG006 ANTEP & SLOT CARS role playing game+ Y
PG008 ASI 1 Tanx, Rollerpede, Avatris Amigoids etc+
PG009 ASI 2 Invaders,Bally 2,Missile command etc!+
PG010 ASI 3 Megaball & Drip Superb !+
PG011 ASI 4 Frogger Go Moku,Cracker Jumpy etc!+
PG012 ASI 5 Raid, Go Looly & Retaliator+
PG013 ASI 6 Pacman Downhillchallenge Welltrix etc!+
PG014 ASI 7 Moonbase, Trix,Nighworks Clauderunner!+
PG015 ASI 8 Airace2,Hball,Snakepit & Numberfumbler!+
PG016 ASI 9 Features Battle pong & Blizzard! +
PG017 ASI 10 Escape, Pipeline, Pickout & Sys!+
PG018 ASI 11 Dad, Connex Revers Towers & Trippin+
PG019 ASI 12 Llamatron, Car, Powerpong. Fab!!+
PG020 ASI 13 Twintris, Squamble,Block it,Ball etc!+
PG021 ATIC ATAC Really playable game! + Y
PG026 CASTLE OF DOOM Excellent! Get it !+ Y
PG028 COLOSSUS & WORLD Fab adventures !+ Y
PG029 CROSSWORD COMPILER As it says !+ Y
PG032 DRAGONS CAVE D&D style game Mega+ Y
PG034 ETERNAL ROME Strategy & DOMINOES+ Y
PG046 HACK Great text adventure-infocom style! +Y
PG047 HOLLYWOOD TRIVIA Nice Trivia Game! +
PG048 HOLY GRAIL One of the best Text adventures+ Y
PG053 LARN A superb text adventure game + Y
PG059 LORE OF CONQUEST space trading D&D game Y
PG062 MENTAL IMAGE 1 Gridrunner invaders & rebound+
PG068 NO MANS LAND Hi tech war game-shoot em up. +Y
PG071 POM POM GUNNER Like beach-head on the 64+Y
PG072 PROPERTY MARKET Become a millionaire !!!
PG074 RETURN TO EARTH Elite space trading game! +Y
PG076 SEVEN TILES Speedball type game-MEGA!
PG079 SEALANCE A submarine strategy game! +Y
PG094 TRAIN CONSTRUCTION KIT make own tracks+Y
PG101 THE INSIDERS CLUB Stocks & shares game
PG108 ASI 14 ChinaChallenge2 & Amiga Columns!+
PG110 SUPER SKODA CHALLENGE Nice car racegame!+Y
PG121 A500+ GAMES PACK 21 games to run on a plus+Y
PG124 TOTAL WAR Great new Risk type game,ok plus!+Y
PG127 AIRMANIA Super platform game from Addware + Y
PG132 ASI 15 Battlecars Lettrix & Mambamove!
PG133 ASI 16 Wastelands, Mission X, Pacman +
PG134 ASI 17 Tomcat, Defenda, Jetman Bugblaster+
PG135 ASI 18 Henry in Panic Skyflyer Omega race!+
PG136 ASI 19 Growth,FranticFreddy,Biplane & more!+
PG139 DUNGEONS OF MADROJ Excellent D&D game+Y
PG140 MIND GAMES Stacks of fun with this !Y
PG141/3 SWORD OF WARLOCK RPG adventure 2drives
PG146 ASI 20 Microbes Hollywood trivia Coin drop +
PG153 WAR very good strategy/arcade game+Y
PG155 ASI GAMES 21 Zeus Tettrix Battlements Dragntiles+
PG156 ASI GAMES 22 Lemmingoids,Wizzys quest Duel etc+
PG157 ASI GAMES 23 Quick money,BIP,Interleon Arcadia+
PG164 GAME TAMER 2.3 joystick tester & 268 cheats+Y
PG166 RID III Wicked new shootemup !!!! +Y
PG167 SERENE III From the author of Raid III+Y
PG169 ASI GAMES 24 Revenge Dux Croak 3d maze etc!+
PG170 ASI GAMES 25 Mr Brick,Copper,hememoids,E Type+
PG171 ASI GAMES 26 Superpacman 92 Smash tv Ashido
PG172 ASI GAMES 27 Addictive card games. Really good!+
PG174 AMOS CRICKET Shareware cricket game,1 or 2plr+
PG175 SPACETRAX 2 player shoot each other up game+Y
PG178 MENTAL IMAGE 2 Three Excellent new games +
PG181 STRIKEBALL Baseball type game done in Amos +Y
PG182 ETHOS Simple graphical adventure Sinbad style+Y
PG183 CATACOOMBS great D&D style game. VG.GFX +Y
PG184 FATAL MISSION Very good Shootemup game +
PG186 ASI 28 Doody, DrMario, Invaders2, Madbomber2+
PG187 ASI 29 DOG, Rome, Nova, B-Bal, Atax, Quadrix+
PG188 ASI 30 Bounce & Blast, Total Fire Tank attack!+
PG189 SPACE RESCUE Super scramble like shoot em up!+
PG190 TOP SECRET An excellent quality platform game!+
PG191 ACT OF WAR New space strategy game! +Y
PG199 CASHFRUIT Nice fruit machine game! +Y
PG200 ALL ROUNDER CRICKET New cricket game!+Y
PG202/3 IRON CLADS Good strategic war game!(2)Y
PG204 SHALLBOUND Text adventure with graphics!+Y
PG205 SOCCER CARDS Football managing game!+Y
PG206 ASI 31 Arazmaz,Crazy pipe, revolution etc!+
PG207 ASI 32 Blob, Sector one & Firefighter! +
PG208 ASI 33 Hyperball & War! +
PG209 ASI 34 Trailblazer, Yelp, Obic Rushour! +
PG210 ASI 35 Poing, Snakepit, Cybernetix etc!+
PG211 ASI 36 Mother lode, Wonderland, Kong etc!+
PG212 ASI 37 Klaktris, Ghostship, Paccer etc!+
PG213 ASI 38 One on One,Baldy,Skyflyer2,Transplant!
PG214 LEGEND OF LOTHIAN Superb Ultima type game!!+Y
PG215 ASI 39 Lots of card games on this disk! +
PG216 ASI 40 Disk full of sliding puzzle games!+
PG217 ASI 41 Pacman deluxe, Hellzone Leap II etc+
PG218/9 CLASH OF THE EMPIRES Super strategy!+ Y
PG220 MICROMARKET V1.1 Good stock& shares game! +Y
PG221 OXYD Roll marble to different stations! + Y
PG222 3SHOOT UPS Megarace,Spaceattack 1 & 2! +Y
PG223 PUMPING DUDE Pump fuel on a space station+Y
PG226 3D GAMES 3 games done in 3d construction+Y
PG227 IMP WALKER 3d walker shoot em up & more +Y
PG228 ASI 42 Galaga, Intuder alert Dogs in space!+
PG229 ASI 43 Interlock Roulette Octothello etc!+
PG230 ASI 44 Nibbler,Mouse Impossible,Roll on etc+
PG231 ASI 45 Dtris,Paccheese,B-Castle Teserae etc+

EDUCATION

All ok on A1200!
PE001/5 EDUCATION SET science programs for ages 11+ +
PE006 KIDSPAINT Fab little talking colouring book+
PE007/8 LEARN & PLAY Maths, spelling etc. 5-10 yrs +
PE009 STORYLAND 2 Save toyland from the witch! +
PE010 TOTAL CONCEPTS ASTRONOMY Book on a disk+
PE011 TOTAL CONCEPTS DINOSAURS Book on a disk+
PE013 SIMON & SPACE MATHS Talking maths program
PE014 SPANISH, FRENCH, GERMAN TUTOR Translator +
PE015 TREASURE SEARCH find the lost treasure ! +
PE016 COLOUR THE ALPHABET learn letters & colours! +
PE018 TYPING TUTOR, Superspell Budget & Maclearder! +
PE019 DUNKS DTP A sort of DeskTopPublisher for kids +
PE020 MATHS DRILL Good maths disk for the young! +
PE021/4 SCIENCE Very good four disk set!+ (4)
PE025 FRACTIONS & SILHOUETTES Good maths tutor+ Y
PE026 WW II FACTS Good historical program!+ Y
PE027 AMIGA BEGINNER Learn to use your machine+ Y
PE028 MATHS ADVENTURE Solve questions to progress+Y
PE029 LEXCESS Simple but fun hangman style game+
PE030/2 DESKTOP GUIDE TO ELECTRONIC MUSIC! +Y
PE033 MATCH WITH HUMPTY Match the objects! + Y

BUSINESS

All ok on A1200 except PB006!!
PB001 AMICASH bank management program+
PB002/3 ANALYTICALC Superb spreadsheet!+ (2)
PB004 ASI LABEL PRINTERS 3 of the best+
PB005 BANKIN control your cheque book! +
PB006 BUSINESS CARD MAKER Nice program+
PB007 CLERK Complete accounts package+
PB008 DESKTOP PUBLISHER Simple to use +
PB009 FLEXYBASE DATABASE Address keeper+
PB011 MISC.BUSINESS Geotime, Grocery list, Calc
PB013 QED Simple & effective text ed+
PB014 RIM DATABASE Fully relational !!+
PB015 TEXTPLUS V3.00 The BEST Wordprocessor +
PB017 VISICALC SPREADSHEET Simple to use+
PB019 BUSINESS LETTERS contracts, letters + more+
PB020 TEXT ENGINE 4.0 THE LATEST Version !!! +
PB021 AMIBASE PRO. Powerful easy to use Dbase +
PB022 BBASE II v5.5 A fast & easy to use database+
PB023 FORMS REALLY UNLIMITED form creation prog+
PB024 LAST WILL & TESTAMENTS Just in case !+
PB025 EDWORD Brand new wordpro - V.good +
PB026 AGRAPH Superb Program graphing data +
PB027 BOILERPLATE Business letters & Wordpro +
PB028 LITTLE OFFICE Intergrated Wpro,Sst,Dbase,Gfx+
PB029 ADDRESS PRINT Good label printing program! +
PB030 THE MONEY PROGRAM Home accounting! +

UTILITIES

(Note: "Y" = ok on A1200!)
PU002 A-GENE Good geneology program + Y
PU004a/b A64 EMULATOR NEW VERSION 2.0 (2)
PU005 AMATEUR RADIO 1 Interest to radio hams + Y
PU012 ASI GRAFFIX UTILS graphics convertors etc+Y
PU013 ASI BOOT UTILITIES bootblock utilities + Y
PU015 BIORYTHMS, STARCHART 2 Good programs+ Y
PU021 C-LIGHT RAY TRACER Good program+ Y
PU022 CHEMESTHETICS molecule displayer + Y
PU037 D-COPY The best PD disk copier & more + Y
PU039 DBW The foreunner to Skulpt 3D !!! + Y
PU047 DOPE INTROMAKER Make your own intros
PU048 DYNAMITE FONTS II CutNPaste fontscreens Y
PU049 DYNAMITE FONTS More CutNPaste Fonts Y
PU055 ELECTROCAD DEMO circuit designer +
PU056 EXILE FONTS Excellent CnP fonts+
PU058 FONTS AND RAM MANAGER BIG video fonts+
PU059 FONTS & SURFACES Backdrops & fonts+ Y
PU062 GRAPHICS UTILITIES Various misc. programs+Y
PU063 HAMLAB Convert VGA PC >IFF/HAM+ Y
PU064 HARDDRIVE UTILS MRBackup & FixDisk & more+Y
PU065 ICONMANIA Program icons & more !+ Y
PU066 ICONS Cramm packed with icons !+ Y
PU067 IMPLODER V4.0 Megacrunching Util+ Y
PU071 JR COMM 1.02 Modem users comms package Y
PU072 METALLION UTILS Font Editors & more utils+ Y
PU073/76 KING JAMES BIBLE Old&New testaments (4)+ Y
PU078 M-CAD Hires design package. Excellent + Y
PU080 MESSY-SID Read/Write PC Files, Brilliant!+ Y
PU083 MORSE PROGRAMS for the radio hams. Y
PU086/7 NORTH C 1.3 (2) Complete C compiler & libs+ Y
PU088 NORTH C 1.3 This is the packed 1 disk version!+Y
PU091 PENDLE 200 MEGAUTILS An essential collection+ Y
PU095 PRINTER DRIVER GENERATOR & new drivers+ Y
PU096 PRINTER DRIVER UTILITIES Various utils etc. Y
PU097 PRINT STUDIO V1.25 Prints pics & text etc.+ Y
PU108 ROT A simple 3D drawing package.Very popular.+Y
PU109/10 (2 disk) Structured clipart for Ppage + Y
PU112/3 SOMETHING FOR NOTHIN Video Utils&Fonts+ Y
PU115 ST EMULATOR Run Atari ST software !! 2 Drives
PU117 SUPERKILLERS Virus Killers! You need this! +
PU121/2 TV GRAPHICS Dpaint backdrops&Fonts+(2) Y
PU124 ULTIMATE ICONS Iconmaster,Iconlab,+ Y
PU129/30 VIDEO APPLICATIONS Video utilities+ Y
PU136 ZX SPECTRUM EMULATOR Now with sound +
PU139 GRAPHICS CONVERTERS PC>AMigagfx Converter
PU140 LITTLEBENCH File copier & utils Dos2 only
PU143 OPTIUTILS 1 Crammed full ! Get it+ Y
PU144 OPTIUTILS 2 Get this disk too ! + Y
PU145 OPTICOMMS 1 Ncomm 1.921 Lharca, Zoo Arc+ Y
PU149 ELECTRONIC PROTOTYPER Veroboard designer Y
PU152/66 CLIPART SET: 15 Disks of the BEST clipart +Y
PU167 MULTI-PLOT Superb data plotting program ! +
PU169 GELIGNITE FONTS CutNPaste fonts+
PU170 P-SUITE Disk magazine maker+Y
PU171 OPTICOMMS 2 Ncomm 2 & more +Y
PU172 WORDPOWER Solve Anagrams/Crosswords+ Y
PU174 ASTRO 22 professional astrology now V2.42! +Y
PU175 GELIGNITE FONTS II Excellent IFF fonts+Y
PU176 GELIGNITE FONTS III More of above!!+
PU177/8 BENCHMASTER Windowsbench & Messysid!!
PU182 STOCK ANALYST Technical analysis program+Y
PU183 AMYGEN Excellent geneology program+Y
PU185/8 COSMOPOLITAN FONTS (4) Packed with fonts+Y
PU189 TRONIK VIRUS KILLERS 21 virus killers & docsY
PU191 LANDBUILDER fractal land generator+Y
PU192 SID 2 Get this ! directory util !!! MEGA!+Y
PU197 MOBED 2 Dpaint for Sprites & bobs+Y
PU198 VIDEO WIPES Masks & fades Dpaint 3/4 +Y
PU201 MALICE FONTS Excellent tiny fonts for Dpaint+
PU202 CYCLOPS Weird Plasma/fractal creator ! +Y
PU203 SCOPE 184 utils & clips for Ppage Y
PU205 PC TASK Wicked PC Emulator Get it !!! +Y
PU207 MULTISID Combine SID2 & Multidos(PC>AMIGA)+Y
PU208 ASI HANDYTOOLS 3 mega compilation of utils Y
PU209 FRED FISH CATALOGUE contains FISH 1 - 680 +Y
PU211 AMIGA PUNT A horse race predicting program!+Y
PU212 PERM CHECK PLUS a pools prediction prog Y
PU213 RACE RATER Another horse racing program!! +Y
PU215 CAPTIONATOR Superb shareware video titling!+Y
PU219 WBHACKS+ collection of hacks for + owners+ Y
PU221-225 8 COLOR ICONS Hundreds of new icons +Y
PU226/7 C-EYES FONTS For use in Dpaint, WB, etc.(2)+Y
PU229 JPEG 24 bit graphics compression util disk! +Y
PU230 MORE PRINTER DRIVERS new printer drivers!+Y
PU231/5 PAGESTREAM FONTS 5 disks super fonts!+ (5)Y
PU236/7 SCOPE197/8 Adobe type fonts, 2 disks full! +Y
PU238/9 M.O.R.C. Mouse operated rune caster,oracle !+
PU240 FREECOPY V1.4 powerful disk copying program!+Y
PU241 CALORIE BASE Useful for people on a diet!+Y
PU242 TEXTPLUS PROFESSIONAL 4 needs hard drive!+Y
PU243 ASPICE Circuit analysis program!+Y
PU244 BON APPETIT This is a recipe database program!+Y
PU245/256 C MANUAL Latest version on 12 disks! (12) +Y
PU257/61 PAGESTREAM FONTS 2nd set of fonts!+Y
PU262 RICHARD SMEDLEY COMP II Mortgages etc!+Y
PU263 LYAPUNOV Fabulous & unusual fractals!!+Y
PU264/8 OUTLINE FONTS For Pro pagev3 ONLY!!+Y
PU271 CLUMPY ICONS A disk crammed with icons+ Y
PU272 GOLF RECORDER Database for golf scores!+ Y
PU273 PC<>AMIGASimilar to Messysid, + docs!+ Y
PU274 TRONICAD V1.0 Electronic circuit design!+Y
PU278 GELIGNITE FONTS IV Yes more Iff fonts!
PU279 V MORPH Yes finally a PD morphing prog!!+ Y
PU280 POOLS WIZARD Pools prediction,save disabled+Y
PU281 PEGASUS WORKBENCH HACKS silly hacks+Y
PU282 ASI MULTIVISION 2 Imagelab,Wasp & more,super+Y

ANIMATIONS

PA039 ERIC-S AMY VS WALKER Cute & sexy! 1.5M Y
PA040 ERIC-S BATMAN vs JOKER Very funny!!!+Y
PA042 ERIC-S COYOTE STRIKES BACK 1mg too! +
PA043 ERIC-S MORE AEROTOONS Very witty !!!+ Y
PA045 ERIC-S STEALTHY II Mig-29 vs Stealthy !+Y
PA046 FRANKLYN THE FLY Day in the life of a fly! +
PA053/4 LIGHT CYCLES (2) Tron animation+
PA056 MAGICIAN II Good RT animation+Y
PA072 THE JUGGLER A classic amiga demo!+ Y
PA074 THE WALKER vs The Helicopter - Mega !+ Y
PA075 THE WALKER vs A2000 A classic ! + Y
PA085 JET ANIMATION Fractal Flight but better! +Y
PA086 FRACTAL ANIMATION full screen low flying anim+Y
PA091/3 GAS TURBINE, STEAM & PETROL ENGINE (3)+Y
PA094 AMY JOGS,WALKS & SNEEZES by E Schwartz! +Y
PA095 HOW TO RUN INTO A WALL by Eric Schwartz! +Y
PA097 SMALL STATION AT KHERNE New 1mg version+Y
PA099 ATF AGILITY new ES anim, very witty as usual+Y
PA100 VTOL CONTEST Check out this new ES anim ! +Y
PA101 DOLPHIN DREAMS Great Dolphin anim! + Y
PA103/4 KINGFISHER 2 Superb bird animations!+ Y
PA106/7 THE JOURNEY Fab fractal pics & anims(2)+Y
PA108 DESERT DOO Guy finds ice cream van in desert+Y
PA109 SATURN ORBIT Ray traced flight around Saturn+Y
PA110/13 THE SORCEROR Sorceror turns into dragon(4) +
PA114/17 SORCEROR 2 More dragons but 2mg (4) +
PA118 3 SCHWARTZ Skydive,Soft landing & bomber! +Y
PA119 STEAM ANIMATION V2.0 Now with sound! +Y
PA120 TWO STROKE PETROL ENGINE Super anim+Y
PA121/30 10 disk set Steve Packer anims!(1200 ONLY)

AGATRON

All ok on A1200!
AGA01 RED LOTUS Spinning down the road. Fantastic !+
AGA03 STAR TREK - Shuttle fly past - Great ! 1m +
AGA09 STAR WARS - Fighter fly by, impressive 1m +
AGA10 STAR TREK - Enterprise in dry dock. Incredible+
AGA23 FLEET MANOEVRE Stunning animation! 1m +
AGA24 KULI PEN animation & Ping pong. Great! 1m +
AGA25 THE RUN , a superb car chase 1mg +
AGA31 PORSCHE anim rising out of table 1 mg. +
AGA33 PROBE Bird of prey animation & Klingonhit! 1m+
AGA35 SPACE PROBE, great anim of probe zooming off!+
AGA36 BIRD OF PREY, loop the loop animation 1m +
AGA37 TOBIAS GOES KNACKERS - Check this out ! 1m +
AGA38 TOTALLY WICKED ! Shuttle & Enterprise (2 MEG)]
AGA39/53 AGATRON SPECIAL! Yes, a 15 disk anim!+Y
AGA54/62 AGATRON SPECIAL! a 9 disk anim, fans only+Y

POWERANIMS

PP001/2 ANTI LEMMINGS (2) This is Brilliant! 2M
PP003 AT THE MOVIES Cute anim of Amy squirrel 1.5M+Y
PP008/10 BUZZED (3) Great anim of wasp crashing! 2M
PP011/12 DATING GAME (2) Very witty!, Get it. 3.5M!
PP016 GULF WAR Another ES production! Good 2M! Y
PP021/24 LANDING (4) Tobias Richter poweranim 4M!
PP025/27 STATION AT KHARN (3) Incredible 2M demo Y
PP040/43 AT THE MOVIES II (4) Hilarious ! 1mg>3mg
PP044/45 AMY V WALKER II (2) Another witty ES demo 3M
PP046 SWEET REVENGE Coyote vs Roadrunner ! 1.5mg+Y
PP050 UNSPORTING Wicked aerotoon by Schwartz+ 2M Y
PP051/2 CHARLY CAT Super Shwartzlike cartoon! 2mg.Y
PP053/4 CHARLY CAT AT THE BEACH 2nd fab anim 2mg!Y
PP055/6 APC MISSION Superb walker & tank battle 3mg!
PP057/9 CHARLY CAT CATCHES A CANARY Fab! 3MG.
PP060/3 CHARLY CAT MOUSTERMIND Great! 3.5MG.
PP064 DUNCAN DUNG BEETLE Unusual 2mg animation! Y
PP065/6 CHARLY CAT SNOWJOKE Latest anim 2mg.+ Y
PP067/9 SPEED LIMIT 3mg motorcycle race! + Y (3)
PP070/1 LEMMINGS REVENGE Very amusing anim! 2mg Y
PP072/3 TALES OF A TIME TRAVELLER Super movie 3mg!
PP074/6 G.I. SPY 3mg anim from charlie cat author! (3)
PP077/84 THE HAUNTED Tremendous animation,3mg!(8)
PP085/7 THE AD Strange swartzlike animation! 3mg (3)
PP088/9 SPORTING DOO DOO Nice new animation! 2mg(2)

DEMOS

PD005 AMOS 3D DEMO Shows some great effects!+ Y
PD018 CHAOS ROCK Fab light show with fractals!+
PD068 PHENOMENA ENIGMA Absolutely brilliant!+ Y
PD097 SILENTS GLOBAL TRASH Incredible!!+
PD130/34 ALCATRAZ ODDESSY Awesome!! Ok on 500+!
PD142 FINAL CONFESSION Music & Plasma effects!+ Y
PD159 ANARCHY IN THE KITCHEN Some good FX Fab!+
PD164 DESIRE MENACE Good Psycho rave demo + Y
PD165 DARK DEMON Mega new demo .... get it+ Y
PD170 PIECE OF MIND Good 3D vector effects. +
PD171/2 SILENTS EXPOSE(2)*Incredible Get it !+ Y
PD175 REFLECT SOUND VISION Super effects & music!
PD176 CHAMELEON DEMO Very nice vector demo!+ Y
PD177/8 TRSI TIME ZONE New, some good effects!+Y
PD181 CINEMORPH Fab morphing of 4 faces! 1mbchip!+Y
PD182 SPACEBALL Absolutely brill,needs 1meg chip!+Y
PD183 DIGITAL LETHAL EXIT Good vectors demo! +Y
PD184 ANDROMEDA MINDRIOT Very good vector demo! Y

MUSIC DISKS

PM001 100 GREATEST 64 TUNES 100 fab 64 tunes!+
PM010 AMEGA PARTY WINNERS Four WICKED songs+ Y
PM012 AMIGADEUS CLASSICAL Eine Kleiner etc. + Y
PM022/23 CLASSICAL MUSIC Bach, Handel etc +Y
PM027 D-MOB MUSIC 3 House music remix, good! +
PM030/34 DIGITAL CONCERTs 2-6 Excellent house/dance
PM035 DIGITAL DEBUSSY Fab Rob Baxter conversions!+Y
PM036 DIGITAL DEBUSSYII classic Debussy music!+ Y
PM058 MAG FIELDS CHIP FESTIVAL Full of chip music!+Y
PM059 MANIACS OF NOISE This is brilliant!+
PM062a/62b VIVALDI - FOUR SEASONS (2) V.Good !+ Y
PM090/91MOZART HORN CONCERTO 4 by H.Ga
PM092 PIANO TUNES Nine piano songs- good + Y
PM096 STAIRWAY TO HEAVEN Rendition of the so
PM115a/b CHROME Brilliant music disks ! Y
PM121 NIGHTBREED MUSIC DEMO8 Rave music
PM122/4 PLAYSID 2 (3) You must get this !!!!! +Y
PM125 PLAYSID inc.RobHubbard, ManiacsOfNoise
PM137 KEFRENS MEGAMIX II Very good !! dance
PM141 HARDLINE MUSIC 7 groovy synth-style trac
PM150 DESKTOP HARPSICHORD RECITAL Class
PM152 PARADISE: NO BRAIN NO PAIN Good for
PM153 BIZE: KILL DA BABE 6 tracks of rave music
PM154 PULSE Yes, pulsating rave music again!! + Y
PM155 VINE G-RAVE 5 more good rave tracks!!! +Y
PM157/8 HEATBEAT UPDATE 9 great songs here!+
PM159 DECIBEL OVERLOAD 5 different tunes!+ Y
PM160 FUSION MATRIX 5 rave type tracks!+ Y
PM161 CYBERNETIX 19 songs packed on 1 disk!+
PM162 MORE MED TUNES Fab tunes by Alex St
PM163 OCTASTUFF Some good 8 track tunes! + Y
PM164 OCTAROCK 3D More 8 track & 3d graphic
PM165/6 NUTCRACKER SUITE Super rendition!+ Y
PM167/8 JESUS ON ES Crazy rave music demo!

SLIDESHOWS

PS002 ADVANCE HAM Really stunning !+ Y
PS009 ASTRONOMY SLIDE very impressive !+Y
PS013 BORN TO BE FREE wild animals +Y
PS033 GERMAN RAY TRACE Superb See these !+
PS045 KELLY S/S Some quality HAM pictures.+Y
PS056 NEWTEK DYNAMIC HAM 640x512 4096 co
PS062 NW DYNAMIC HAM Nik Williams Superb q
PS067 RICK PARK'S ART Dpaint hires pics! + Y
PS072 SUPER HAM CARS This is a must-Mega!+ Y
PS086 SONIC 5 Superb D-HAM 4096 colour pics+
PS090 FRACTALGEN Incredible fractals etc + Y
PS093 VANISH 3D Awesome 3d ray traced +Y
PS094 INVISIBLE WORLD II Yuk Bedbugs And mo
PS101 ANALOGUE SLIDE Ray traced space pics +
PS102 ACCESS DESIGN Ray traced space pics +
PS103 DYNAMIC HIRES 2, 4 fantastic quality pictu
PS107 ALCATRAZ MUSEUM 18 super quality dra
PS111 IMAGINE SLIDE Some great hand drawn a

MUSIC UTILS

PT001 ALGORYTHMS Create weird midi tunes
PT002 ART OF MED Excellent !+ Y
PT005 CASIO CZ EDITOR 250 patches ! +
PT009 K1 IFF SAMPLES Fabulous samples +
PT011 KAWAI K1 editor for patch changes!
PT012 KAWAI K4 editor as above!
PT013 MED 3.2 Excellent music seq. + Y
PT014 MED MUSIC DISK As it says !+ Y
PT015 MIDI DISK Various midi stuff +
PT020 ST-01 - ST-10 Samples--Ring for details
PT021 SOUNDTRACKER 2.6 Excellent, ok plus!+Y
PT022 SOUNDTRACKER COMPILATION Several
PT025/6/7/8 ST-90-93 SAMPLES Studio quality+ Y
PT029 YAMAHA DX7 VOICE FILER for DX7 synth
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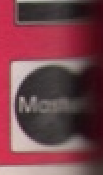
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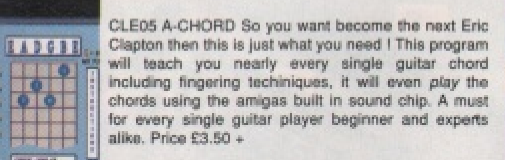
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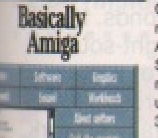
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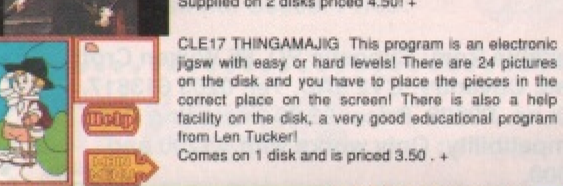
CLE12 ALPHABET TEACH A nice educational program for the young., a very simple to understand spelling program which shows the child a picture & asks for the completion of the appropriate word. The program also has built in speech and will run a series of pictures at the same time speaking the name of the object displayed. Comes on1 disk and is priced 3.50+

CLE13 HOME BREW This is a superb program for the creation of home made wines. If covers all the details of fermentation, bottling & storing of the wine. A selection of recipes for many different wines can be found on the disk & there is an option for printing the recipies out to a connected printer! This program comes on 1 disk and is priced at 3.50. +

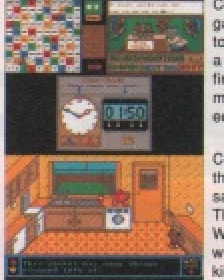
CLE14 TOTAL CONCEPTS ECOLOGY Total Concepts Ecology will give you and your children an enthralling overview of the most important "ology" in our lives. This alternative way of learning about Ecology enables you to flip through pages of text, click onto words to get more information and contains superb graphics. Supplied on 3 disks priced 4.99 +

CLE15 FAST FRET By Keith Klatworthy, this program is a guitar scales tutor, the very thing for the budding lead guitarist! Will play the scales through the Amigas sound chip with ajustment of speed for every level of skill required! There are many exercises in many scales so you too can become the next rock legend! Supplied on one disk priced 3.50. +

CLE16 KINGS & QUEENS A History lesson on all of the Kings & Queens of England since recorded history! Allows you to read & examine the royal family tree & is complete with many pictures! Find out how they lived and died and what contributions they made to society & their country. Supplied on 2 disks priced 4.50! +

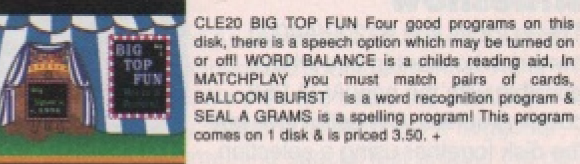


CLE17 THINGAMAJIG This program is an electronic jigsw with easy or hard levels! There are 24 pictures on the disk and you have to place the pieces in the correct place on the screen! There is also a help facility on the disk, a very good educational program from Len Tucker!
Comes on 1 disk and is priced 3.50 . +



CLE18 WORK & PLAY There are three educational games on this disk, CLICK CLOCK is a clock program to help children learn the time, FUNTIME TABLES is a program for learning the multiplication tables, and finally LETS GO SHOPPING teaches children simple multiplication & division! Very colourful and attractive educational disk! Comes on 1 disk priced 3.50. +

CLE19 PLAY IT SAFE This program teaches safety in the home or outdoors! Help Teddy make your home safe as it has been invaded by mischievous beasties. There are 5 dangers in each location & 9 locations! When you make something safe you are rewarded with part of the picture of the beastie! Very good for kids of 3 - 10 years! Comes on 1 disk priced 3.50. +



CLE20 BIG TOP FUN Four good programs on this disk, there is a speech option which may be turned on or off! WORD BALANCE is a childs reading aid, In MATCHPLAY you must match pairs of cards, BALLOON BURST is a word recognition program & SEAL A GRAMS is a spelling program! This program comes on 1 disk & is priced 3.50. +

CLE21 JIGMANIA by Len Tucker. There are two programs on this disk, Jigmania is a jigsaw solving program and will keep you & the kids amused for ages! There is also a jigsaw construction set to allow you to create your own too! There are several jigsaws provided on the disk and there are childrens and adult options! Comes on 1 disk priced 3.50. +

CLG18 SKAN 29 This is a fun platform game in which you must guide Sid through 220 screens and defeat the big droids at the end of each level, the game will run faster if you are lucky enough to have an Amiga 1200! This game should keep you occupied for a long time! Comes on 1 disk priced 3.50. +

CLG 20 JUNGLE BUNGLE by Len Tucker. This game is essentiallyt an icon driven adventure written mainly for the younger person in mind but anyone can play! You must catch the raindrops but beware of the banana stealing monkeys! Very addictive with colourful graphics. Comes on 1 disk 3.50. +

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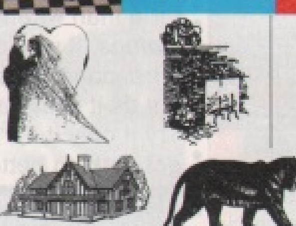
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PD SCENE

Demos, animations, games, music...it's all here in the Public Domain, and it's all virtually free! Tony Horgan takes a peek at the thin end of the wedge.

CYNOSTIC AGA SLIDE SHOW

slideshow

This is for all you A1200/A4000 owners who want to see what's possible with the new AGA 256 colour graphics. Cynostic have put the disk together using a selection of fractal landscapes (realistic ones at that!) and ray-traced images. If your dabblings with 256 colours have gone no further than graduated fills in *DPaint*, you'd better get a copy of this, the best AGA showcase around at the moment.



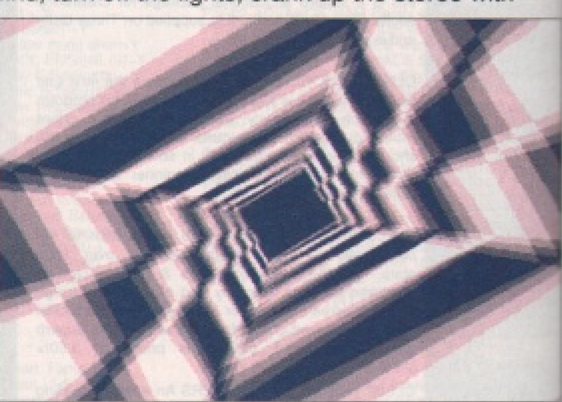
Available from: Cynostic PD, 85 Wyken Croft Road, Coventry, CV2 3AD. Tel: 0203 613817. Disk no. P0008. Price: £2.00 (including P+P). Compatibility: Only works with A1200 and A4000.

85%

LETHAL EXIT

demo

You can't beat a good tunnel effect – one that pulls you into the screen and takes you on a trip through time and space. Tip: blag the biggest TV you can find, turn off the lights, crank up the stereo with



some mad techno, and boot up a happening demo – preferably one with a good tunnel effect on it.

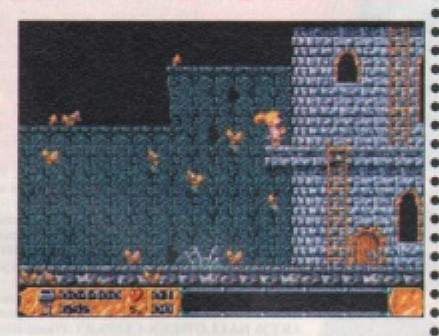
So, you guessed it, Lethal Exit features a tunnel effect, and a pretty good one it is too. The trouble is, it's only on screen for about 30 seconds. It's followed by a spinning floor logo and a light-sourced polygon, which gives way to a stream of vector-bobs th at spiral out of the screen. It's rounded off by a full-screen Glenz and a bit of fantasy artwork. The soundtrack starts off well, but it fades into the realms of supermarket music towards the end. Not a stormer, but it has its moments.

Available from: Cynostic PD, 85 Wyken Croft Road, Coventry, CV2 3AD. Tel: 0203 613817. Disk No. D0041. Price: £2.00 (including P+P).

77%

CRAZY SUE 2

game



It's pretty rare that you get a really impressive PD game. Even the best ones are usually re-hashes of ancient coin-ops. *Crazy Sue* was a bit different from the rest, because it actually looked and felt like a commercial platform game – for the first 10 seconds at least.

Unfortunately, the sequel is a bit disappointing. It's been programmed very neatly for a PD offering, and the graphics are pleasant enough, but the gameplay seems to have been forgotten. Don't expect any weird and wonderful enemies to shoot or squash – all you've got to do is work your way through some tedious levels of platforms, making pixel-perfect jumps across gaps and spikes. This ranks alongside early Vic 20 releases.

Available from: Wack PD, New Exchange Buildings, Queen's Square, Middlesbrough, Cleveland, TS2 1AA. Tel: 0642 246584. Disk no. G071. Price: £1.90 (including P+P).

40%

LAST REFUGE

game

What do you reckon this is then? An RPG? An adventure game? A *Gauntlet* clone? Try *Space Invaders*. Swap the aliens for soldiers, replace the space backdrop with a castle, ditch your ship for a man with a gun, and you've got *Last Refuge*. It would be OK if the controls weren't so unresponsive, and there was a bit more going on, but as it is there's little to keep you interested. Try it only if it's the last game on earth and you've got nothing better to do.



Available from: Roberta Smith DTP, 190 Falloden Way, Hampstead Garden Suburb, London, NW11 6JE. Tel: 081 455 1626.Disk no. SCA162. Price: £1.40 (including P+P).

32%

NIGHTBREED 12

music compilation

This is a strange collection of tunes, all from the same musician. Some are pretty morbid, with unintelligible voices and scratchy drones. Others are lighter, but the sound quality is poor throughout. 'Experimental' is a polite way of describing them – complete rubbish would be another.



Available from: Roberta Smith DTP, 190 Falloden Way, Hampstead Garden Suburb, London, NW11 6JE. Tel: 081 455 1626. Disk no. SM229. Price: £1.40 (including P+P).

65%

PLANE

demo

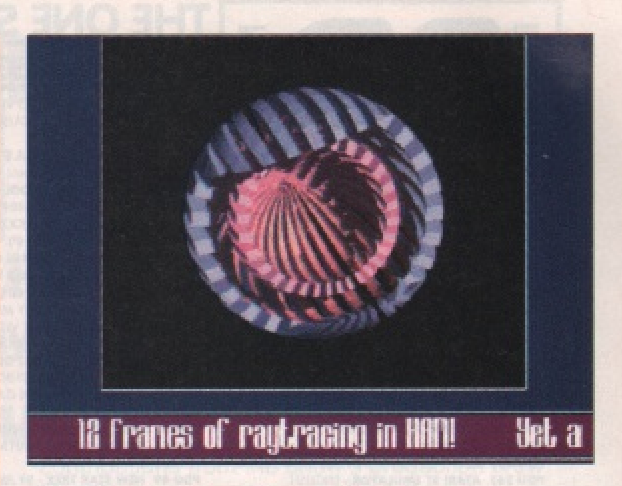


Here's one of those mellow demos that doesn't try to blow your mind. Instead, it's happy just making you think 'Hmmm, that's quite nice'. It's been coded by Funky Buddhas, and appropriately enough, the soundtrack is laid back jazz/funk, with some excellent rhythm guitar and slapped bass samples, veering towards early Level 42 at times.

Some of the visual effects are impressive, although the tunnel is spoilt by the text that appears over the top. It's certainly well worth a go if you like this kind of music.

Available from: Cynostic PD, 85 Wyken Croft Road, Coventry, CV2 3AD. Tel: 0203 613817. Disk no. D0050. Price: £2.00 (including P+P).


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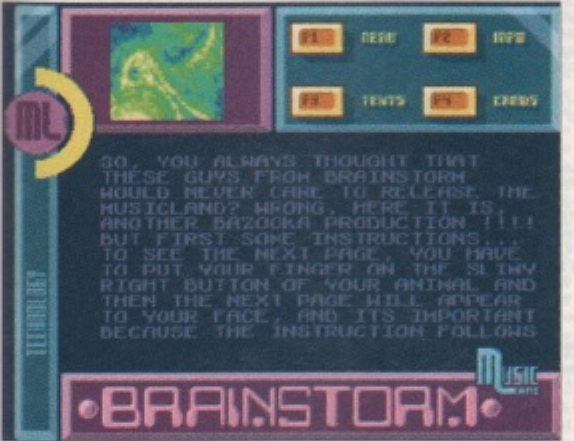
MINDRIOT

demo

This one's from Andromeda, and kicks off with a trendy kind of cinematic countdown intro. As is often the case, it's the intro that's the best part – it's not particularly stunning in itself, but it suggests that there's something special just around the corner. After this, most of the effects are displayed in a quarter-screen window, with a scrolltext beneath. Some are nice enough, like the vector cuboid with a mirrored surface, but others are just plain boring, like the 'six realtime calculated circles' that the coders seem so proud of.

Available from: 17 Bit, 1st Floor Offices, 2/8 Market Street, Wakefield, W. Yorks, WF1 1DH. Tel: 0924 366982. Disk no. 2438. Price: £1.75 (including P&P).

68%



MUSICLAND

music demo

There's a lot of this sort of music on the PD circuit. You wouldn't expect to hear it anywhere else, and to be honest, I wouldn't really want to. What sounds fine as a backing to a demo or a disk mag, can often sound rather twee on its own. This is a neatly compiled demo from Brainstorm that majors on the music, offering a choice of five tunes. Technically they're all excellent, with some pristine piano and guitar samples. Musically, they're best described as typical demo tunes. One for the traditionalist.

Available from: Cynostic PD, 85 Wyken Croft Road, Coventry, CV2 3AD. Tel: 0203 613817. Disk no. S0039. Price: £2.00 (including P+P).


69%

SNOW JOKE

animation



Here's the best animation to come out for a couple of months. The plot is a familiar one, with Charley the Cat trying to get his girl, hampered in his quest by a foul-playing rival. Needless to say, after plenty of snow-related slapstick (skiing into trees, falling through thin ice, etc.), Charley hits it off with his love.



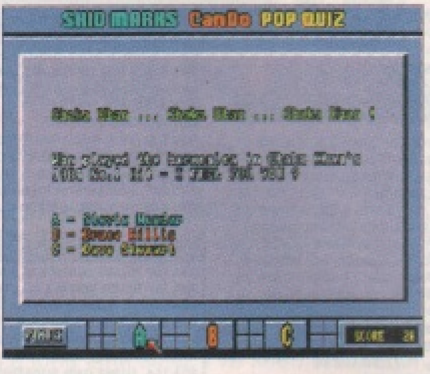
Don't bother if you've only got one drive, unless you enjoy continually swapping disks for 10 minutes. On the other hand, if you've got an extra drive, and fancy a bit of a giggle, Snow Joke should bring a smile to your face. Animation fans should get their copy as soon as they can.

Available from: Cynostic PD, 85 Wyken Croft Road, Coventry, CV2 3AD. Tel: 0203 613817. Disk no. A0025 a+b. Price: £3.00 (including P+P). Compatibility: Requires at least 2Mb to run.

88%

POP QUIZ

game



It's OK, this is a Mike Read-free zone. This hasn't really got anything to do with the TV game show, or the old tie-in game from Elite. It's along the lines of a pub quiz machine, but the main difference is that you get the same questions in the same order every time you play.

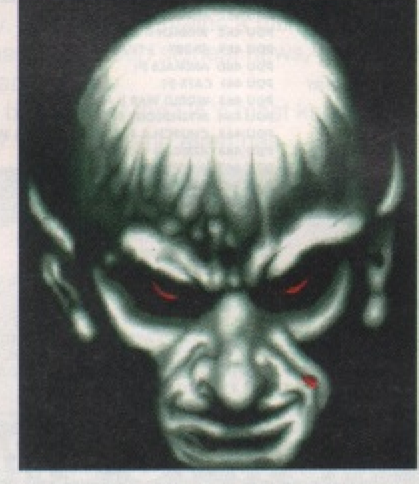
You start with no points, and get 10 for every correct answer. Each time you get a question wrong, you lose 10. The game's over once you lose all your points. It's fun for two or three games, but after that you've got to go through all those questions again, just to get to where you were before. The questions are a bit easier than on most coin-op quizzes, so it's more a matter of skill than the lottery that it usually turns out to be. Even so, the linear format lets it down, so you probably won't want to play it more than a few times.

Available from: 17 Bit, 1st Floor Offices, 2/8 Market Street, Wakefield, West Yorks, WF1 1DH. Tel: 0924 366982. Disk no. 2426. Price: £1.75 (including P+P).

70%

DEMON DOWNLOAD

demo



Normally a two-disker would class as a megademo, but this one from the Silents doesn't quite warrant that tag, despite some impressive stuff. It starts with an exquisitely detailed hi-res logo. Staying in hi-res, it puts up a picture of a computer running Global Trash, one of the Silents' better demos of last year. Next up is a spooky mugshot of a nasty goblin type-thing, which snaps into a close-up, before a brief session of morphing dots and sinus waves starts to mellow things out. Just when it was getting good, it ends with a gory little animation. This is a bit short, but still quite entertaining.

Available from: Wack PD, New Exchange Buildings, Queen's Square, Middlesbrough, Cleveland, TS1 1AA. Tel: 0642 24 6584. Disk no. D014 1+2. Price: £2.50 (including P+P).

70%

PD UTILITIES

Mat Broomfield opens up another box of tricks as he takes a peek at the latest and greatest PD utilities to come his way this month.





BLUE ROSE FONTS
VIDEO FONTS

With all the enthusiasm and excitement that scalable fonts have caused in design circles recently, it's easy to forget how useful and attractive unscalable screen fonts can be, especially for video work.

Blue Rose Fonts is as good a reminder as you're likely to get – it brings together 51 such fonts, and it's a long time since I've seen so many original examples in one go.

Each font is drawn in full colour and occupies a single low-resolution screen, the idea being that you can cut and paste the letters individually as you need them. One use that you might like to consider, and that is certainly a good way of showing off these marvellous fonts, is video genlock work where high-quality fonts such as these are invaluable and worth quite a bit more money than the measly £1.50 per disk that the author is charging for them!

If you have even the faintest interest in art, graphics or video work you simply must buy this disk. Even if you don't make any use of the fonts, some of the art is inspiring!

Available From: Blue Rose PD, 33 Glenmore Walk, Hilden, Lisburn, N.Ireland, BT27 4RY. Disk ID: BRFonts. Price: £1.50 (Including P&P) Cheques payable to Eddie Barry. Compatibility: All Amigas. Memory: 512K.

90%

FINAL FRONTIER ISSUE 4
DISK MAG



'Space – the final frontier.' So began the world's most popular and enduring science fiction series. Since then, *Star Trek* has appeared in dozens of languages and has gained millions of loyal fans throughout the world. It has generated thousands of pounds in memorabilia, and new generations are growing to admire Kirk and Spock, thanks to the Beeb's fondness for repeats. Books, videos and plastic models of the characters have all become popular gifts for the Trekkies among us.

One group of dedicated fans have put together *Final Frontier*, the Amiga's only *Star Trek* disk mag. Issue four has just been released and with a supporting cast of Amiga personalities such as Tobias Richter and Bjorn Lynne, it's looking better than ever.

It comes on four disks, each of which boots independently. Each disk contains a mixture of articles, discussions, fiction stories, news, digitised photographs and music.

It's written by some of the UK's most knowledgeable *Star Trek* fans, and even has contributions from the show's production crew. Needless to say, the magazine is a veritable treasure trove of interesting Trek trivia.

A lot of its content is absolutely unique, such as the unused *Next Generation* script for an episode in which Beverly Crusher's husband comes back from the grave!

The mag also contains a few Tobias Richter originals – superb ray traced screens depicting various fictitious scenes from the show.

Lively reader debates, an adverts section and special readers' offers complete this superb disk-based fanzine. Anyone with more than a passing interest in the goings-on on board the Starship Enterprise should get themselves a copy of this .

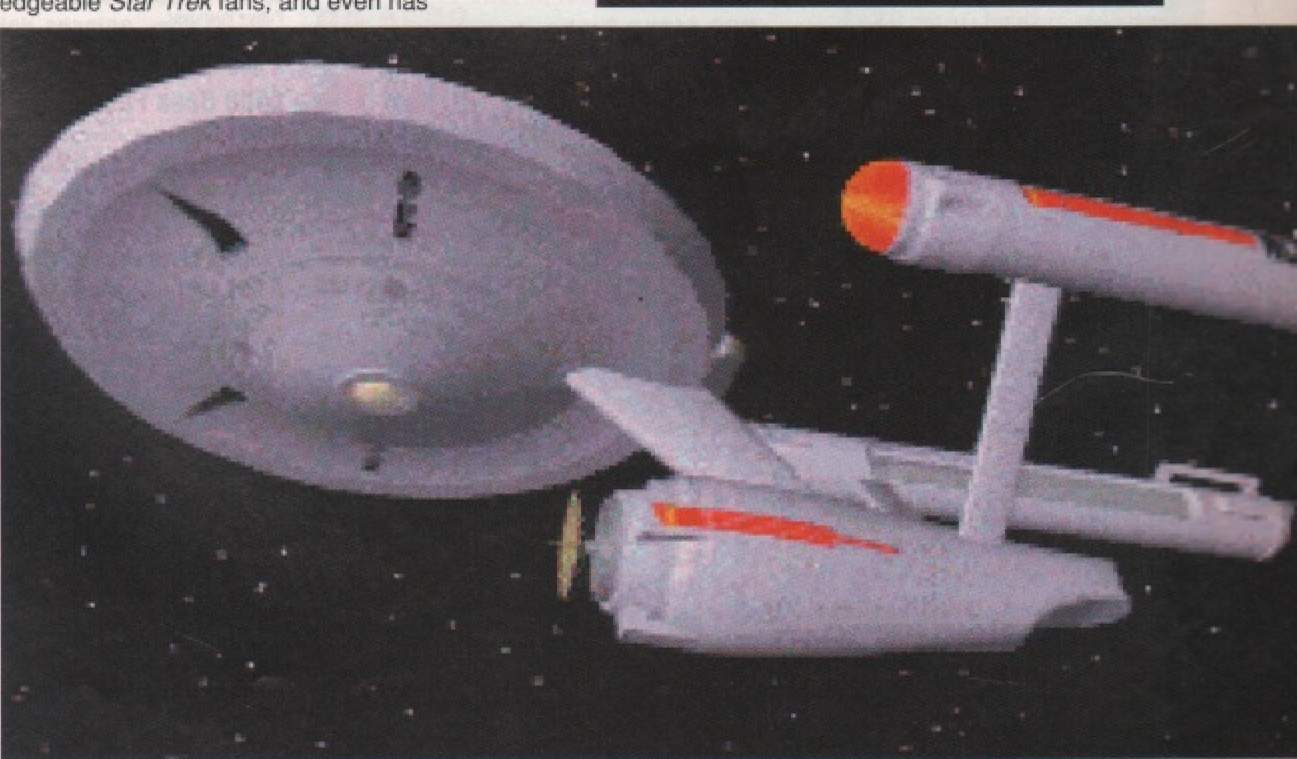
[Yes Mat, but what has this to do with PD utilities - Dan]

Available from: Infinite Frontiers, 14 Rouseden Grove, Great Barr, Birmingham, B43 5HN. Tel: 021 358 1213. Disk ID: Issue 4. Price: £5.00 for all four disks (including P&P). Cheques payable to Simon Plumbe. Compatibility: All Amigas. Memory: 1 Mb.

91%

»







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READERS SURVEY 1993

WIN! £3,000 WORTH OF FREE SOFTWARE

Every 12 months we like to ask you, our valued readers, to pick up your pens and let us know your thoughts and opinions about CU Amiga. This is your chance to tell us what you think of the magazine (go on, we can take it!). It's been another hectic year of change on CU Amiga and we want YOU to tell us what we're doing right and what we're doing wrong.

You might think that questionnaires are a waste of time and that no-one's going to be interested in what you have to say. Well, you couldn't be more wrong! Each questionnaire we receive is carefully scrutinised and each comment has a direct bearing on the future development of the magazine. Last year, we received a staggering 5,000 replies to our questionnaire and, as a direct result, we introduced Bookshelf, Club Call, Art Gallery, Amiga Profiles, Buyer's Guides, Step-by-Step tutorials and Readers' Offers amongst many other new features and columns. We also rejigged our score boxes, simplified the mag's design, and bought up full-price commercial programs for our coverdisks. So you see, we really do listen to what you have to say, SO SAY IT!

Of course, no questionnaire would be complete without some form of financial inducement, so we're also giving away more than £3,000 worth of top-rated software in a special prize draw. The sender of the first survey out of the bag will win £500-worth of software of their choice, with the next 25 runners-up receiving £100 worth of top quality utilities and games for their Amiga. If you want to vent your spleen, now's your chance.

HOW TO ENTER

Please try and answer every question. If you're stuck for an answer to any particular question simply miss it out and go on to the next one. Most questions simply require a tick in a box, but some require more extensive answers – please try and complete as much of the questionnaire as possible. You can either tear out this form and send it in, or a photocopy is just as acceptable. You can also write out your answers on the back of a five pound note or a matchbox if you want, we're not picky! Once you've filled everything in send it to: CU AMIGA SURVEY 1993, EMAP IMAGES, PRIORY COURT, 30-32 FARRINGDON LANE, LONDON, EC1R 3AU. Entries to arrive no later than June 1st, 1993 (although the compo stays open for our overseas readers until September 1st, 1993, as we appreciate that some of you get your copies some time after the mag has gone on sale in the UK).

IMPORTANT: Where appropriate, please tick the relevant boxes to indicate your answer. All information given in this questionnaire will be treated in the strictest confidence and no details will be given/sold to any other organisation.

1. About You

Name..

Address..

....

Age..........

Sex — Male ☐ Female ☐

2. What do you do for a living?

- At school ☐
- Further Education ☐
- University/Poly ☐
- Full-time work ☐
- Part-time work ☐
- Unemployed ☐

3. What's your annual income?

£2,000 or less ☐	£2,001-£6,000 ☐
£6,001-£10,000 ☐	£10,001-£15,000 ☐
£15,001-£20,000 ☐	£20,001-£25,000 ☐
£25,001-£30,000 ☐	£30,001 plus ☐

4. What do you use your Amiga for? (Tick more than one box if necessary)

	Regularly	Sometimes	Never
Games	☐	☐	☐
Music	☐	☐	☐
Graphics	☐	☐	☐
Programming	☐	☐	☐
DTP	☐	☐	☐
Word Processing	☐	☐	☐
Education	☐	☐	☐
Comms	☐	☐	☐
Business	☐	☐	☐
Video	☐	☐	☐
Multimedia	☐	☐	☐

5. What type of Amiga do you own?

A500 (512K) ☐	A500 (1Mb) ☐
A500 Plus ☐	A600 ☐
A1000 ☐	A1200 ☐
A1500 ☐	A2000 ☐
A3000 ☐	A4000 ☐
Amiga CDTV ☐	

Other (please specify)..

6. In the next 12 months, are you interested in purchasing any of the following machines:

A600 ☐	A1200 ☐
A4000 ☐	A570 CD ROM drive ☐

7. Do you own a memory expansion for your machine?

Yes ☐ No ☐

8. Which of the following peripherals do you own?

	Own	Intend to buy this year
Monitor	☐	☐
Disk Drive	☐	☐
Hard Disk	☐	☐
Printer	☐	☐
Action Replay	☐	☐
Genlock	☐	☐
Sound Sampler	☐	☐
Modem	☐	☐
MIDI Interface	☐	☐
Scanner	☐	☐
Video Digitiser	☐	☐
PC Emulator	☐	☐
Accelerator Card	☐	☐
24-Bit Graphics Card	☐	☐
CD-ROM Drive	☐	☐

9. How much time per week do you spend using your Amiga?

Less than 2 hours ☐	2-5 hours ☐
6-10 hours ☐	11-15 hours ☐
16-20 hours ☐	Over 20 hours ☐

10. How much have you spent on Amiga hardware during the last year? How much do you intend to spend during the next 12 months?

	Last Year	This Year
Less than £20	☐	☐
Between £20-£50	☐	☐
£51-£100	☐	☐
£101-£200	☐	☐
£201-£300	☐	☐
£301-£400	☐	☐
£401-£600	☐	☐
£601-£700	☐	☐
£701-£1000	☐	☐
More than £1000	☐	☐

11. How much have you spent on games software last year? How much do you think you'll spend this year?

	Last Year	This Year
Less than £25	☐	☐
£25-£50	☐	☐
£51-£100	☐	☐
£100-£150	☐	☐
£151-£200	☐	☐
£200-£250	☐	☐
£251-£300	☐	☐
More than £300	☐	☐

12. How much have you spent on non-games software during the last year? How much do you think you'll spend this year?

Less than £25 ☐	£25-£50 ☐
£51-£100 ☐	£101-£150 ☐
£151-£200 ☐	£201-£250 ☐
£251-£300 ☐	More than £300 ☐

13. What other computer magazines do you regularly buy? (Tick more than one if necessary)

Amiga Action ☐	Amiga Format ☐
Amiga Shopper ☐	The One ☐
Amiga Computing ☐	Amiga World ☐
Amiga Power ☐	Amiga Force ☐

»

14. How important is the content of a magazine's coverdisk in influencing you to buy CU Amiga?
Not important ☐
Occasional influence ☐
Major influence ☐

15. On a scale of 1-10, how much does a cover disk influence your decision to buy CU Amiga?
1 Not at all ☐
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐
8 ☐
9 ☐
10 Absolutely important ☐

16. Do you prefer a magazine to come with two disks at £3.95, or have just one disk at a cheaper price?
2 disks/£3.95 ☐
1 disk/Reduced price ☐

17. Where did you buy this copy of CU Amiga?
Local Newsagent ☐
Subscription ☐
Chain Store ☐
Computer Store ☐
Other (please specify)..

18. How many other people will read this copy of CU Amiga?
0 ☐ 1 ☐
2 ☐ 3 ☐
4 ☐ 5 ☐

19. If there's one thing you could change about CU Amiga to make it a better read, what would it be? (Please use a separate sheet of paper if there isn't enough space for your answer.)
....
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20. How many copies of CU Amiga have you bought in the last year?
1-3 ☐ 4-6 ☐
7-9 ☐ 10-12 ☐

21. Is CU Amiga your favourite Amiga magazine?
Yes ☐ No ☐

22. If you answered no to question 21, which is your favourite Amiga mag? (Tick one only please)
Amiga Force ☐
Amiga Power ☐
Amiga World ☐
Amiga Action ☐
Amiga Computing ☐
The One ☐
Amiga Format ☐
Amiga Shopper ☐

23. How do you rate the following sections in this month's issue?

	Good	Average	Poor
Contents	☐	☐	☐
News	☐	☐	☐
Coverdisk Pages	☐	☐	☐
Lead Feature	☐	☐	☐
First Impressions	☐	☐	☐
Game Reviews	☐	☐	☐
Budget Reviews	☐	☐	☐
Small Tips	☐	☐	☐
Play-To-Win	☐	☐	☐
Competitions	☐	☐	☐
Get Serious	☐	☐	☐
Productivity Reviews	☐	☐	☐
Buyer's Guide: Ext. Drives	☐	☐	☐
Buyer's Guide: Business Software	☐	☐	☐
Art Gallery	☐	☐	☐
Amiga Profiles	☐	☐	☐
PD Scene	☐	☐	☐
PD Utilities	☐	☐	☐
Readers' Offers	☐	☐	☐
Book Shelf	☐	☐	☐
D-Paint DIY	☐	☐	☐
Workbench Guide	☐	☐	☐
DIY Guide	☐	☐	☐
AMOS Guide	☐	☐	☐
Q&A	☐	☐	☐
Backchat	☐	☐	☐
Club Call	☐	☐	☐
Points of View	☐	☐	☐

24. Have we got the right balance between our technical and games coverage?
Yes ☐ No ☐

25. If you answered no to question 24, how should we change our coverage?
More technical coverage ☐
More games coverage ☐

26. Does CU Amiga give you enough information to make a buying decision?
Yes ☐ No ☐
(If 'No', what could be done to improve our reviews?)
....
....

27. Do you buy Public Domain software?
Never ☐
Occasionally ☐
Regularly ☐

28. Which sort of PD are you most interested in? (Tick more than one if necessary)
Demos ☐
Music ☐
Slideshows ☐
Games ☐
Animations ☐
Utilities ☐
Virus Checkers ☐

29. The Amiga CD console will probably have a price tag of £199. Would you be interested in buying such a machine?
Definitely ☐ Possibly ☐
Only if it's cheaper ☐ No ☐

30. Which of the following Buyer's Guides would you like to see appear in the magazine over the next six months? (Number in order of preference – '1' indicating first choice, '2' your second preference, etc)
Hard Drives ☐ Modems ☐
Memory Expansions ☐ Digitisers ☐
Word Processors ☐ Business Software ☐
Printers ☐ Camcorders ☐
Genlocks ☐ Databases ☐
Accelerator Cards ☐ Animation packages ☐
Emulators ☐ 24-bit graphics ☐
Games ☐ DTP ☐
Programming Languages ☐ Education ☐

31. Where do you buy your games?
High Street store (Dixons, Smith's, etc) ☐
Virgin ☐ HMV ☐
Our Price ☐ Computer Store ☐
Mail Order ☐ Other..................

32. Where do you buy your productivity software?
High Street Store (Dixons, Smith's, etc) ☐
Virgin ☐ Computer Store ☐
Mail Order ☐ Other..................

33. How long have you had your Amiga?
Less than one year ☐
Two years ☐
Three years ☐
Four years ☐
Over five years ☐

34. Are you planning to buy an A1200?
Yes, within the next six months ☐
Yes, within the next 12 months ☐
Yes, but I don't know when ☐
No ☐

35. Would you like to see the free Amiga Guides become a regular part of CU Amiga?
Yes ☐ No ☐

36. If you answered yes to question 35, what would you like to see them cover?
Graphics ☐ Animation ☐
Video ☐ Music ☐
DIY Projects ☐ Buyer's Guide ☐
Beginner's Guide ☐ A1200 ☐
A600 ☐ Public Domain ☐
Programming ☐ DPaint ☐
Other suggestion..

37. Which member of the CU Amiga staff should be given the order of the boot?
Dan 'No, Not Me' Slingsby ☐
Jon 'Keep on Reading' Sloan ☐
Heather 'Good Girl' Turley ☐
Nick 'Next' Veitch ☐
Tony 'Nope' Horgan ☐
Steve 'Only One More' James ☐
Garry 'Yes This is the One, Put Your Tick Here' Williams ☐

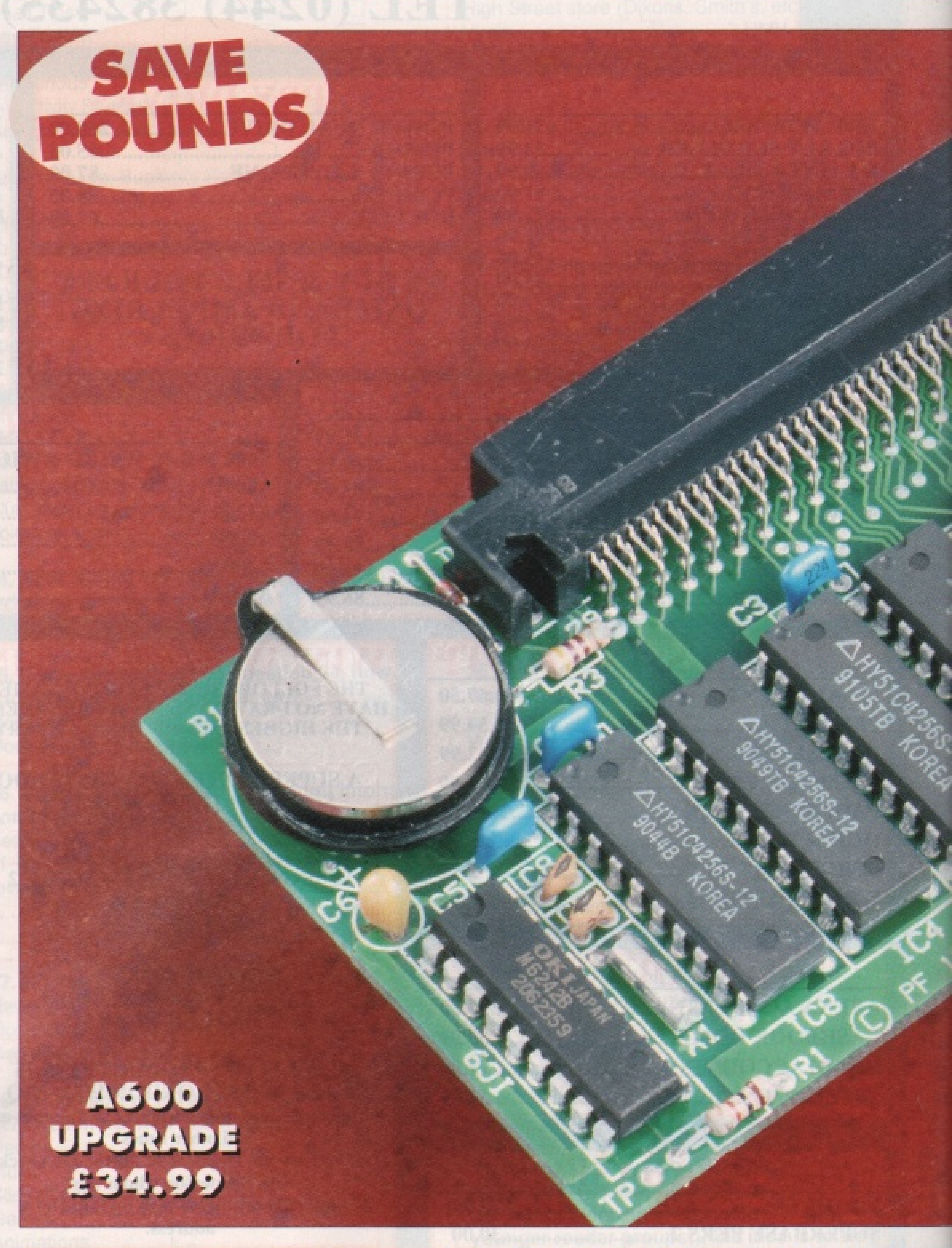
38. CU Amiga has regular reader panels where we discuss various points about the magazine. Apart from copious amounts of beer and fags (or orange juice and Mars bars if it's the younger reader groups!), the idea is to slag off the CU team as much as possible (not hard!) and tear the magazine to pieces. Would you like to attend such a session?
Yes ☐ No ☐

39. Finally, before you nod off completely, please tell us where you live.
Scotland ☐ Wales ☐
London ☐ SE England ☐
SW England ☐ Midlands ☐
NW England ☐ NE England ☐
Northern Ireland ☐ Europe ☐
Australasia ☐ Rest of the World ☐

Phew! And that's it. Thanks for taking the time to fill out this questionnaire.

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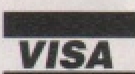
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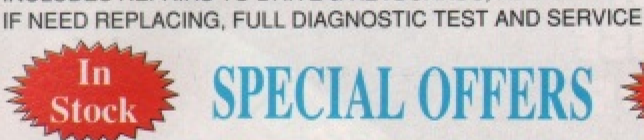
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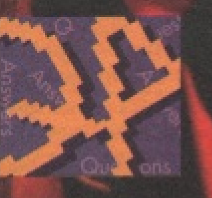
ISSUE 5 MAY 1993

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Our resident bookworm, Mat Broomfield, takes another bite out of the latest offerings in his local bookshop.

THE MIDI MANUAL
SAMS £22.95

Over the past few years an increasing number of ordinary users have started using advanced MIDI equipment in conjunction with the Amiga to produce professional music. The MIDI Manual aims to inform the reader about all of the latest industrial advances whilst thoroughly explaining the basics of MIDI technology.

This book doesn't give any information aimed specifically at Amiga MIDI users, and the information is basically directed at everyone involved in the production of music, from newcomer to professional. It contains tons of interesting and enlightening information about every aspect of MIDI in a musical environment.

Although some subject areas covered in the book seem quite complex, it is very well written and makes interesting reading. It comes complete with a bibliography and an extensive glossary to help newcomers to understand the considerable amount of jargon and technical terminology.

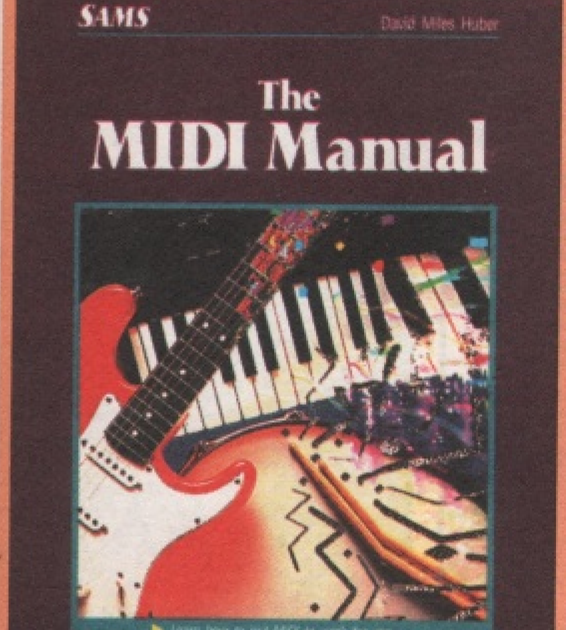
The book moves at a leisurely pace which is reassuring considering the nature and complexity of the subject matter. There are many detailed illustrations and photographs of MIDI hardware ranging from cables and switcher boxes to synthesisers, sequencers and drum machines. These help to clarify things considerably, to say nothing of breaking up large bodies of potentially baffling text!

Although short, the introduction contains a lot of information including the history of MIDI and its possible uses in every type of musical environment.

Preliminaries out of the way, David Huber, the author, then goes into great detail explaining exactly what MIDI is and how it works. Subjects such as sequencing, synchronisation and MIDI based sampling are explained in great depth. A number of MIDI instruments, such as synthesisers and drum machines, are described in great detail. Accompanying each instrument listed there's a picture and a detailed description. Even such curios as the MIDI Grand Piano and MIDI Guitar are covered.

The MIDI manual includes a lot of valuable information on every aspect of the MIDI industry. If you want a serious book about MIDI and the Amiga then I suggest you look elsewhere. If you are interested from a purely musical or technical standpoint the book makes for interesting reading.

Available from: Computer Bookshops Limited, 50 James Road, Tyseley, Birmingham, West Midlands, B11 2BA. Tel: 021 706 1188



PROGRAM DESIGN TECHNIQUES FOR THE AMIGA
KUMA £16.95

No matter what language a program is written in, its structure and design is very important. This book aims to teach the basic techniques of good program design to both experienced users and enthusiastic beginners. No previous knowledge of program design techniques is needed. Indeed, such knowledge would probably be counter-productive because this book aims to mould your design techniques from scratch.



The book is split into six parts, each consisting of several chapters. In the first part Paul explains how Warnier diagrams can be used as an aid to the logical construction of a program. He also discusses simple mathematical logic and the basics of structured programming.

He then moves on to describe computer languages, illustrating the requirements and differences of each language.

The book gives specific examples of the three most popular Amiga languages (Basic, C and Assembler). It also gives individual hints, advice and full tutorials with detailed explanations for each language. This makes it much easier for the reader to modify the ideas in the book to his own programming environment.

As the book progresses, a good understanding of your chosen programming language is essential because Paul's tutorials assume a high level of competence. The book does contain some really invaluable information and tips and will definitely be a great aid to programmers of all levels.

Available from: Kuma Books, 12 Horseshoe Park, Pangbourne, Berkshire, RG8 7JW. Tel:0734 844335

AMIGA A600 INSIDER GUIDE
BRUCE SMITH BOOKS £14.95

Although the A600 is a great machine it's not very user-friendly for the beginner. This book is intended as an alternative to the manual that's supplied with the computer. Although the original A600 manual is informative and provides all the necessary information you need to get to grips with the basics, it doesn't go into very much detail. Furthermore, you'll need to read through a lot of irrelevant stuff to find the information that you really need.

This book, on the other hand, was written with the first time user in mind. It starts off by taking you on a guided tour through the Workbench, windows and menus, not only telling you how to use them, but also explaining why you should want to. Naturally a lot of time is spent explaining the basics, but the book is written in such a way that this doesn't become tiresome for more experienced users, and is actually quite amusing in places.

The book progresses from the Workbench to cover subjects such as the uses of disks, manipulation of files, how to use Amiga Shell, script files, icons, printers and a lot more. It even devotes entire chapters to multi-tasking and viruses.

There are parts of the book where too much time is spent simply rehashing the Workbench manual. The book includes many tutorials describing both the very simple and more complex procedures. I have no doubt that someone who has never used an A600 before will be perfectly comfortable with this book. I recommend the Amiga 600 Insider's Guide to anyone who wants to understand their computer and found the manual that came with it a little hard to follow.

If you already have a basic knowledge of the Amiga, you might be better off with one of BSB's Mastering Amiga range of books, which are more detailed and advanced in their coverage.

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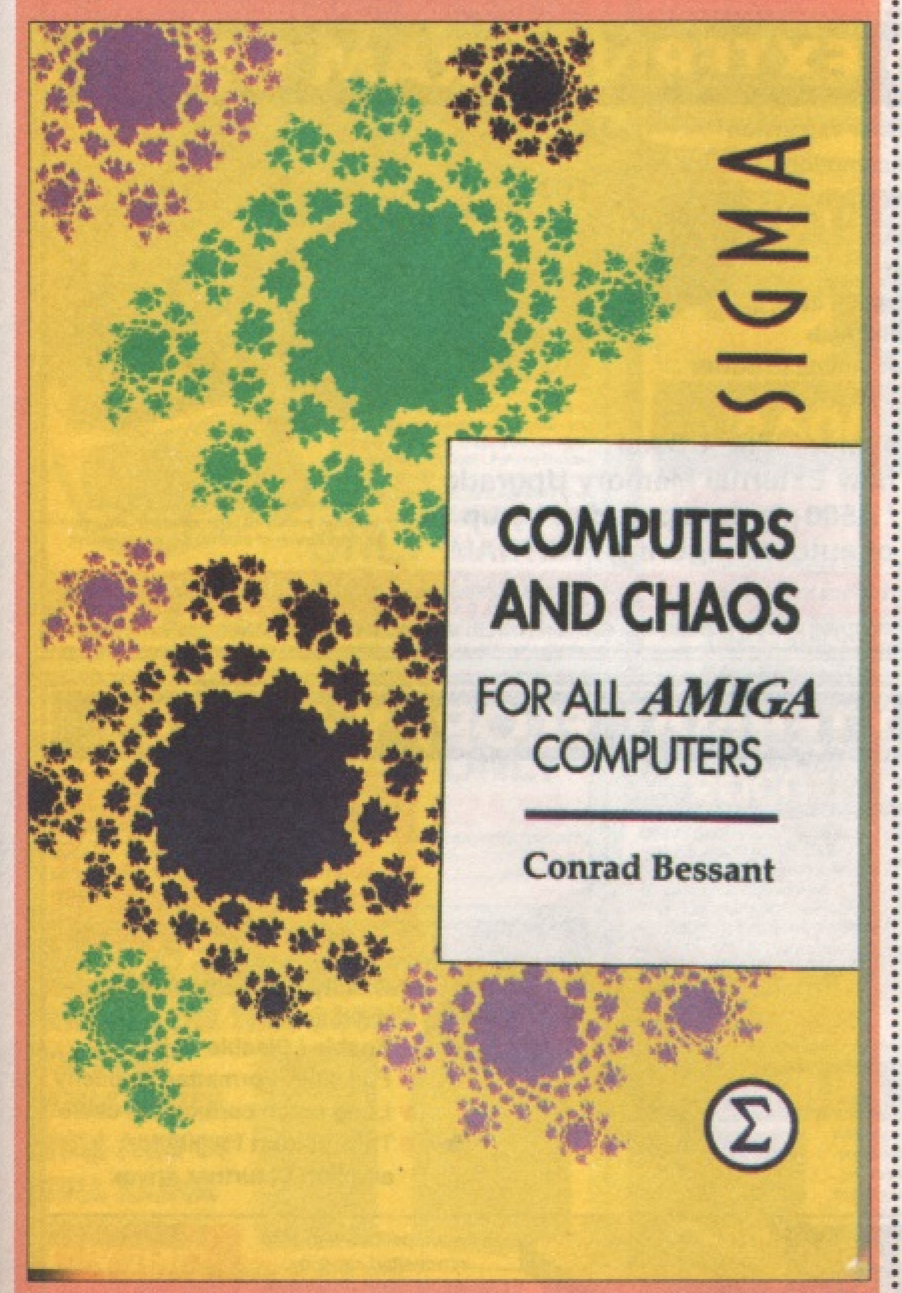
Many of us regard the followers of chaos theory with the same sort of disregard as your average train spotter. Although the subject matter may be somewhat different (having said that, British Rail timetables certainly follow no logic I can think of!), the stereotypical images are the same – bespectacled, spotty and about as socially inept as Mr. Bean, your average Mandelbrot fan has had it pretty rough.

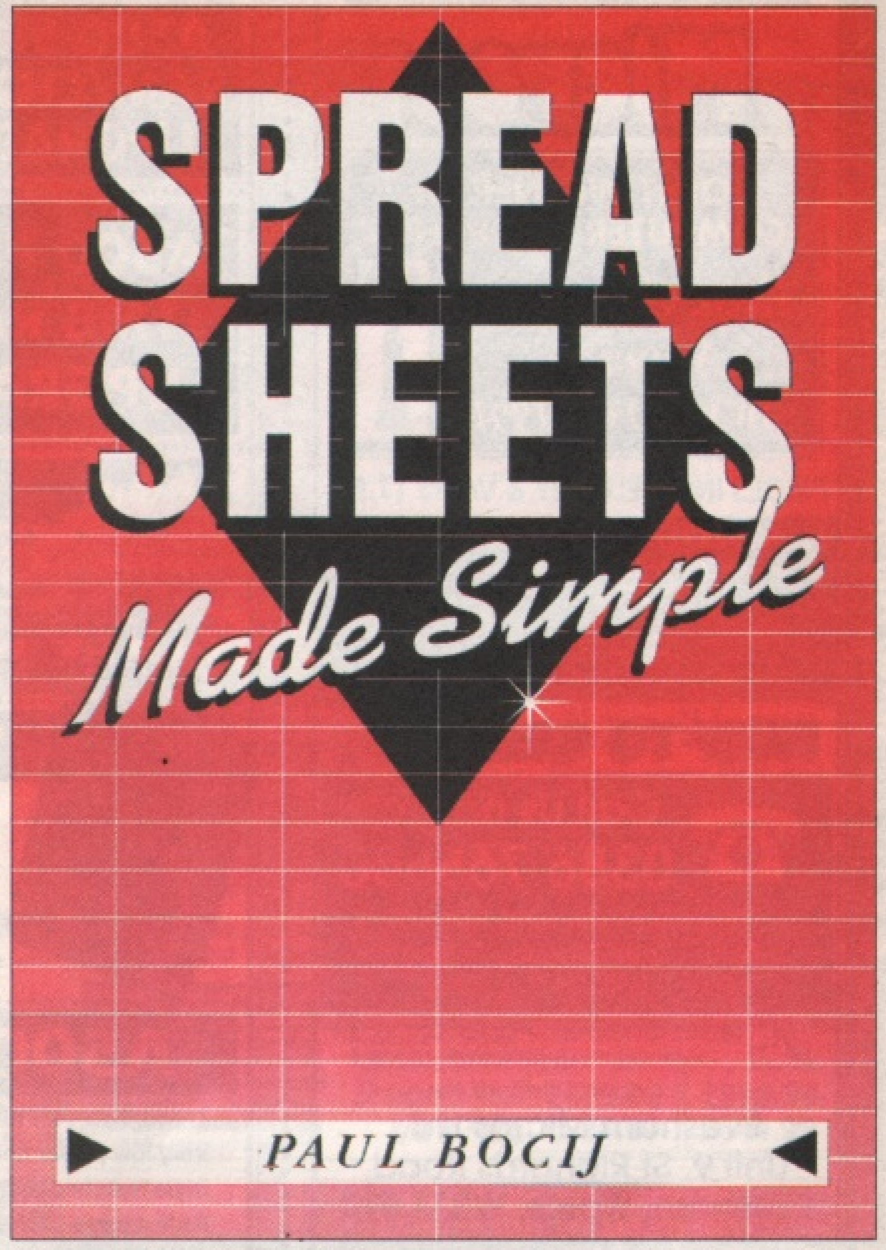
As this latest book release from Sigma Press tries to prove, though, chaos theory is actually a very important aspect of all our lives that is still used extensively by scientists to accurately study such diverse subjects as population dynamics and even weather forecasting. By dropping in that little extra pinch of computed chaos, scientists are able to emulate the workings of nature.

Of course to most of us, chaos theory means one thing – pretty computer-generated pictures – and you'll be pleased to learn that this serves as the backbone of the book. Through nine very readable chapters, author Conrad Bessant explains the foundations of chaos theory, its applications and its many diverse forms. All of this is backed up by some very well documented listings written in Amiga BASIC.

This is perhaps one failing of the book – although Conrad does mention the more popular dialects of BASIC available for the Amiga, both AMOS and the excellent Blitz Basic are dismissed in the first chapter! Amiga BASIC wouldn't have been such a bad choice if it weren't for the fact that Commodore stopped bundling it with Amigas over two years ago! Oh well, at least he didn't plump for something totally ridiculous like Modula-2!

Bessant's book starts with a look at that most basic of fractal graphics, the Sierpinski Triangle. Discovered in the early 1900s, this is one of the oldest fractals in the book but, due to its simplicity (early mathematicians used to draw them by hand!), it serves as a perfect example of the techniques required to generate fractal graphics. As your fractal foundations become more solid, the book then moves onto more complex fractal types such as Koch curves, the butterfly effect and the Rossler and Lorenz attractors.





SPREADSHEETS MADE SIMPLE

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Spreadsheets may not inspire the same sort of enthusiasm as your average 24-bit ray-tracing program, but no-one could possibly doubt their usefulness. Even if you're not the accountant of a multi-national conglomorate, a spreadsheet can prove to be one of the most valuable and certainly one of the most genuinely useful pieces of software you could ever buy for your Amiga.

If you've got even the slightest interest in spreadsheets, then this book may be of interest. Although it's not based around native Amiga spreadsheets such as Gold Disk's Lotus-beating Professional Calc, most of the theory discussed generally applies to just about any spreadsheet program including ProCalc, Advantage, Plan-It and the rest of the Amiga spreadsheet crew.

The book is actually based around a shareware PC spreadsheet called AsEasyAs which could theoretically be run on the Amiga using a PC emulator program. Amiga spreadsheets tend to operate somewhat differently from the classic Lotus 1-2-3, so be prepared to dive into your manual every so often if you wish to translate the Lotus-like keystrokes discussed within the book to your own spreadsheet.

The book starts with the usual foray into spreadsheet theory with some fairly readable basic explanations of what a spreadsheet is, how they work and what they can do for you. It then goes down hill a bit by explaining how to install AsEasyAs onto your PC, which is hardly applicable to a book that claims to be useful to users of other spreadsheet programs. Although this is dispensed with fairly quickly, it has to be said that the book's AsEasyAs bias is a bit too overwhelming - at times, I thought I was reading an AsEasyAs manual!

Obviously the book's main aim is to teach the average spreadsheet user the many applications that the spreadsheet can be applied to and this it does very well indeed. Starting from a simple sheet that adds a list of numbers together, the theory gets progressively more advanced until you're finally ready to handle an complete financial model containing macros, data entry screens and so on.

No-one could possibly doubt the author's knowledge of his chosen subject, but the book reads more like an AsEasyAs user's manual than a study of general spreadsheet use. Although anyone with a basic under-

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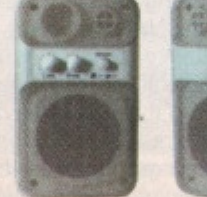
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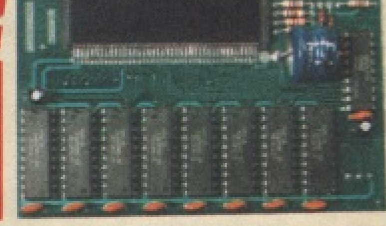
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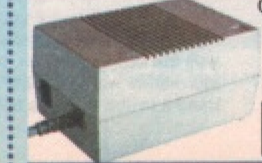
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DELUXE PAINT PART 4

Peter Lee gets ready to paint the town red this month as he takes us through DeluxePaint's confounding colour capabilities.

Defining ranges of colours is simplified in *DPaint IV* through this palette arranger. Up to 256 colours can be defined, kept, selected and saved using this requester. The sets are independent of the mode you're working in, so that while you may only have 32 colours in the palette, you can still pick which ones are part of that 32. Getting just the right colour is made easy by the tools on the left.

Given that the most-used mode in *DeluxePaint* is low resolution, it's a miracle what can be achieved with just 32 colours. It may sound a lot – until you try to create something using shades and shadows when the palette disappears faster than gatecrashers at a Mike Tyson party.

But colour is what visual impact is all about; it creates moods and realism, so being able to control it in *DPaint* is one of the essential stepping stones to getting the most out of the program. It may seem obvious, but pinning down just how to manage the palette is another big step towards making your work more professional.

IN LIVING COLOUR

Low resolution mode is a feature of the Amiga, not of *DeluxePaint*. Memory and display limitations mean that the maximum number of colours you can have on screen is 32. A special exception to this is halfbrite mode, where your original palette of 32 is doubled by some clever display dodges. Clever yes – but don't be fooled into thinking you have 64 colours to change and edit as you like, because the second half of the palette is merely a dimmer reflection of the first 32 colours. So if you edit one of the original colours in the palette, its dull twin in the second bank of 32 colours will change too. It may sound like a good idea gone wrong, but halfbrite really comes into its own when you need realistic shadows in your work. By using halfbrite as the fill option it's possible to create terrific lighting effects in your work. And the program takes care of everything for you; when halfbrite fill option is active, it will replace the existing palette with the halfbrite values of the colour underneath to give a realistic display of light and shade.

TIP: To un-halfbrite an area, use a fill tool in halfbrite fill mode with the right mouse button clicked. This won't affect the standard 32 colours on screen, so your work keeps its integrity.

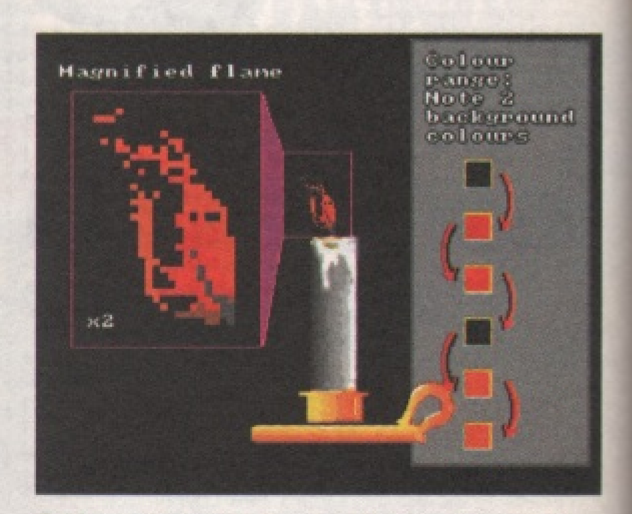
TIP (*DPaint IV* only): If you have a HAM image which you want to convert to a more standard format, then by changing the screen format to 64 colours rather than the standard 32, *DPaint* will have a wider range to work with, and make a much better stab at interpreting the HAM palette.

HIGHER AND HIGHER

The higher the resolution, the fewer colours there are available in *DPaint*. This is not a problem at times when colour isn't important. For instance, if you are designing video titles you want the crispest display possible, and will probably need only half a dozen colours. You can either set the screen mode and number of colours at the start-up screen, or do it once the program is running by accessing the Screen Format pull-down menu. If you have a drawing already on screen and you change to another mode, the program will re-compute the palette, and even try to fit the current image into the new screen size if you agree. But you will lose any custom brush or animation in memory once the mode has changed.



Using an idea from last month's tutorial on perspective, and just a few colours, you can create a city scape which ET would be proud to cycle over. The city lights were created with colour cycling enabled on half a dozen different colours, the grid function turned on, and the line control set at one dot per eight pixels. Once a grid had been drawn, it was cut out as a brush, then tilted backwards using perspective to give it a receding feel. Mountains were roughly sketched with the filled freehand tool, and the graduated sky used a range of blues to give the feel of twilight approaching.

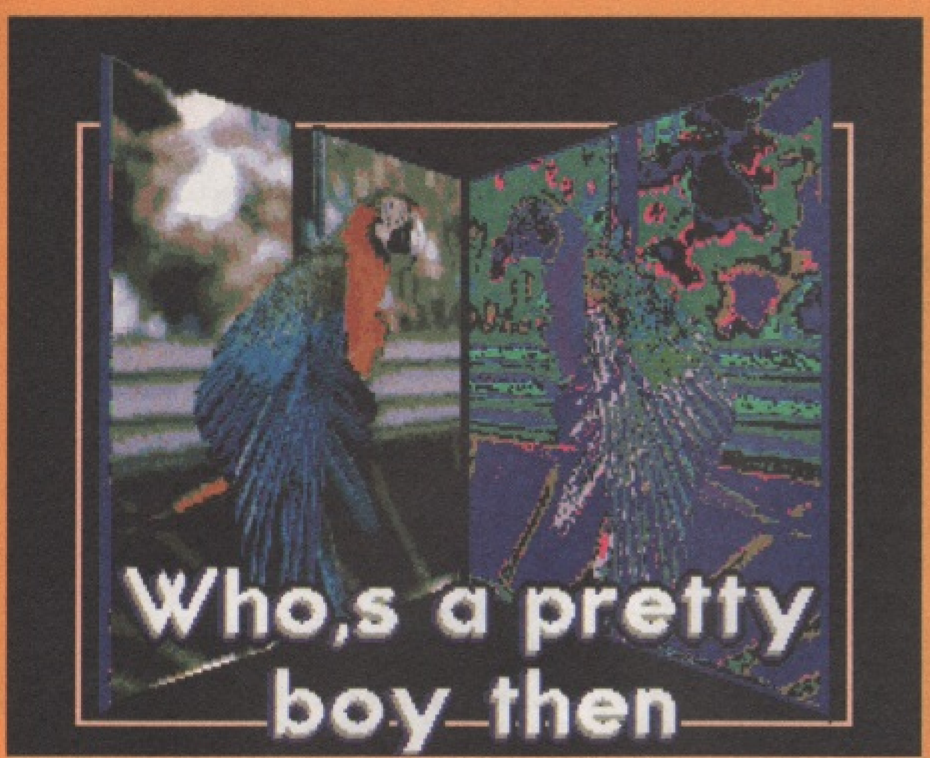


Great fun, colour cycling – especially for dark nights. Here a flickering candle flame splutters in the breeze (OK, it's only a picture – so use your imagination!). Six colours are defined as a range, four in shades of red, and two as the background colour. This way, when the range is cycled there will be times when parts of the flame will disappear and thus seem to flicker. The flame itself is drawn using all colours in the range so that each portion will have a spell at being invisible.

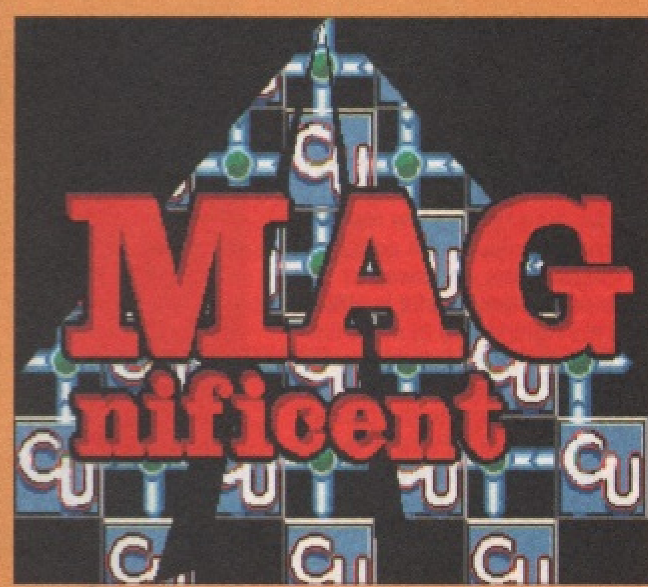
PAINT IT

Editing colours is simplicity itself in *DPaint III*, but it's a little more complicated in *DPaint IV* where a special colour requester appears, based on a HAM palette. This has the advantage of giving access to all the HAM mode's 4096 colours for mixing, but is slow at times and a little disconcerting to anyone familiar with the *DPaint III* requester. To call up the colour control, either press 'P' on the keyboard, or right-click the right mouse button in the area on the tool palette which shows the current pen and background colours.

Taking *DPaint III* first, colour can be selected in one of two ways; either click on the colour in the requester or on an existing colour on-screen. Now, by altering the slider controls under the heading RGB, you can increase or decrease the amount of Red, Blue or Green in the selected colour. Similarly, altering sliders under HSV controls Hue, Saturation and Value settings. And whereas RGB editing is intuitive for the most part, HSV can be a little more difficult to understand. Hue changes the colour, ranging through the available palette; Saturation decreases the strength of colour – from, say, dark green to pale lime, and Value alters the luminosity – effectively, the brightness – of the colour.



DPaint's halfbrite mode allows for some amazing effects. Take this mirror image for instance. It looks as though the parrot is seeing himself reflected in glass thanks to the palette's own mirror – 32 colours which are dimmer than the original palette. To create shadows on objects simply select Halfbrite from the fill requester, then draw out an in-built filled shape over the desired area.



Halfbrite mode is a neat piece of Amiga trickery which has its uses for giving images a great feeling of depth through shadow and highlight. The CU logo architecture looks as if it is well behind the text, thanks to some striking shadows.

HOME ON THE RANGE

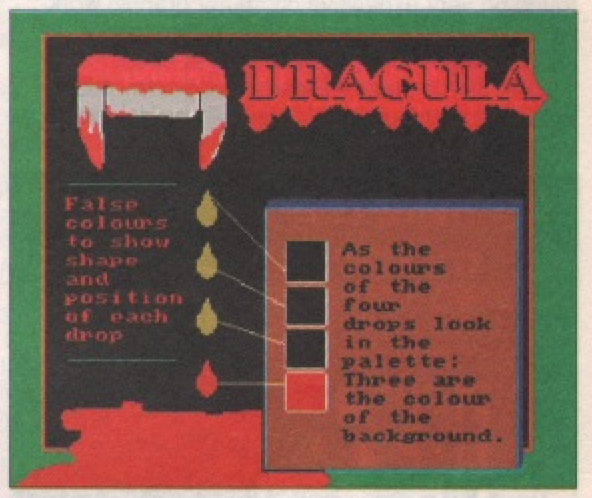
Perhaps the most useful control on the palette requester is Range, since a sequence of similar colours is of terrific benefit for almost all applications. Take something simple like a leaf: to realistically represent one you will need at least four versions of green – for shadows, highlights and detail. And the way to get just the right shades is to define the lightest highlight, and four cells away on the palette box, the darkest green shadow. In *DPaint III*, here's what to do next: with either colour of the currently active cell, click on Range; when the pointer changes to the word 'to', click on the other extreme of green. In *DPaint IV* colour ranges have been separated from the colour requester, and can be accessed via the colour menu. Colour selection is handled differently and you can create ranges much more intuitively by clicking on a palette colour, then positioning the bead of colour you 'pick up' somewhere on the range bar (the top dotted row). Up to eight ranges can be created in this way and they are numbered by a sliding counter at the top left of the requester.

TIP: To save time, you can select colours from *DPaint IV*'s palette by pressing the square bracket keys when a bead of colour is active on the pointer. This cycles through all available colours. Shift and a square bracket toggles the background colour too.

TIP: to quickly define a range of shadows and highlights: from the palette requesterdefine the lightest or darkest value of your main colour, then use the palette requester's Copy command to place a duplicate in a cell some distance away. Now by editing the Value slider you can darken or lighten the colour without having to go all the way through the colour definition process again.

BELLS AND WHISTLES

In *DPaint IV* the ability to save and load individual palettes is very useful, but users of the older version can easily mimic this function. I find the

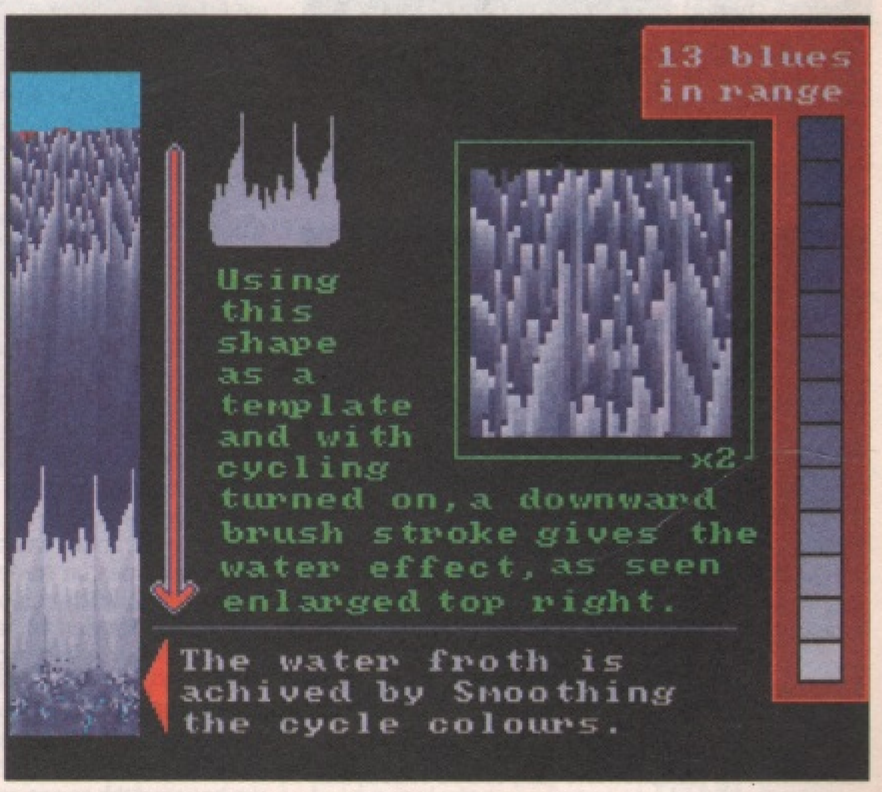


This shows how colour cycling can simulate movement. When Cycling is active, a single drop of blood falls down the screen; in reality four drops are drawn, using a range of colour which includes three to match the background and one for the blood. As the colours cycle , it appears as if the red drop is moving downwards.

Colour cycling on the water gives the illusion that it is falling.

Wider-spaced near the bottom, it also gives a feeling of momentum.

When cycling is activated in this image, the water plummets into the pool. This is achieved by drawing the water in colour cycle mode (key F7) using a water-shaped brush (!). The effects of gravity are simulated by having brush strokes further apart near the bottom of the fall, where the water has lost some of its liveliness. The place where the water hits the pool was created using the same cycled colours as the fall, but with a simple round brush; afterwards Smoothing created the misty appearance, which billows when cycling is turned on.



A step-by-step guide to how the waterfall scene was created, showing the brush, cycled colours and the palette range of blues.

quickest way to 'save' palette information in *DPaint III* is to cut out and save a small brush from the screen whose palette you want to keep. Then when you want to revert to that palette any time, you can simply re-load the brush (which takes up very little disk space) and use the Picture/Change Colour/Use Brush palette menu option. *DPaint IV*'s colour sourcing is more sophisticated than this, because of the Arrange Palette function. This is accessed through the Colour/Palette/Arrange menu, and allows you to create rows of alternative palettes (again through HAM trickery – you can still only have 32 colours for drawing in a low resolution palette). There are 256 colours in a colour set, and you can define ranges here, and swap or delete colours. This is particularly useful in HAM, and can help you get the right shade in more limited palette environments. In effect you can organise colours into several ranges to hit on the right colour, then copy that colour into the current working palette. An alternative in *DPaint IV* is to use the colour mixer, which is the wide grey area to the right of the palette requester. Painting in this area with one colour then adding another produces interesting mixes and blends, areas of which can be chosen as a current colour. You may find this very haphazard, but it does duplicate a function found on very expensive computer graphic workstations, and it is a pretty clever way of giving you instant access to all 4096 colours at once.

TIP: Some other IFF paint and display programs hit problems with *DPaint IV* images which have Colour Set information saved along with them. The only solution, until third-party programmers upgrade their software, is to ensure that if you are using other art packages with your *DPaint IV* images, the colour sets are not defined.

ON YER BIKE!

Colour cycling is a cheap and cheerful way to give some semblance of movement to otherwise static single screens. *DPaint* achieves this by allowing you to define a range of colours – from two to the whole palette if necessary – which it will then cycle through at whatever speed you choose. Cycling simply means replacing one colour with the next one in the palette; if, for example, you had just two colours in a range, say black and white, and had anything drawn on screen in black, with colour cycling enabled the object would alternate between black and white.

Not only is colour cycling cute, it's an absolute doddle to set up and gives some terrific single-screen effects. From bouncing balls to running water, colour cycling can bring an added touch of realism to your work. In an earlier article on fills, we covered the range requester, which allows you to define any number of colours as a range; as well as being the fill range, they also automatically become a colour-cycle range too.

You can use colour cycling in two ways – for dynamic movement, such as a ball falling, or subtle suggestions of animation, like water shimmering. Take a look at the panel for a few hints on getting the most out of cycling. CU

COLOUR CYCLING

Colour cycling in both *DPaint III* and *IV* is activated by pressing the TAB key. Once running, the program will cycle through any colours that are already defined as a range. Although each version of the program handles range definitions in a different way, as far as cycling goes things are identical. The speed of colour cycling is vital to realistic motion, though you may find some compromises have to be made because there is a limit to how fast *DPaint* can shunt colours around.

One often neglected aspect of cycling is the ability to make a colour 'invisible'. By making a colour (or several for that matter) in the palette the same colour as the background, the object which uses that colour will disappear from the screen for part of the cycle. This is important for objects with dynamic movement; take a falling ball for instance. Use black as the background colour, and define a range of six colours. Make the first the colour of your ball and the remaining five black. Using the largest in-built round brush, and starting with the first of the six colours in the range, paint one brush stroke on screen.

Paint the next ball some way below the first, using the second colour in the range. As it's black, you won't be able to see anything – but it IS there, as you'll find out; continue until you have a vertical line of balls, ending with the final colour of the range. Pressing TAB will now set the ball on its downward path; it's pretty basic as Amiga art goes, but it can be the building block to some wonderfully inventive cycling effects. Imagine defining a range of 12 colours and having the ball bounce back up again, in-between the downward-cycling brushes.

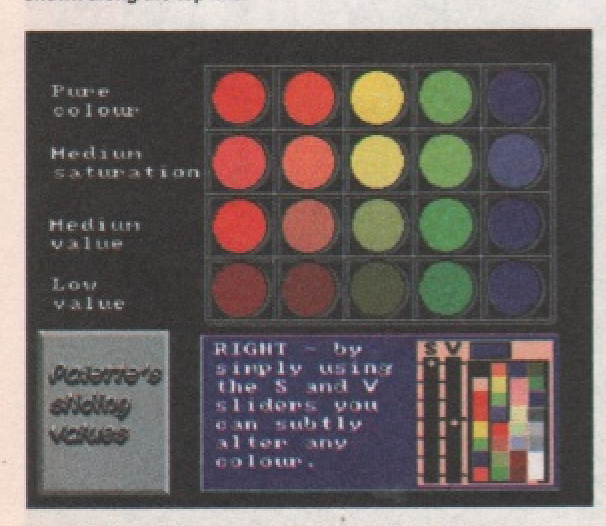
TIP: more often than not you will find that the whole palette starts to cycle like a mad hatter when all you want is your range of colours to do the business. In this case you have to define dummy ranges, each of just one colour, so only the colours you want are cycled. Simply define the extra unwanted ranges in the same way as the real one, but use the same colour (outside your range) as both the To and From colour.

Not content with the wonders of *DPaint III*'s cycling effects, *DPaint IV* has its own super version, which allows you to cycle any one colour in the palette. If this were the Middle Ages the programmers would probably be burnt as witches, because this feature is a piece of artistic wizardry second to none. To get the single colour cycle to work, first of all open up the Ranges requester and choose a colour from your current palette as the starting point, placing it on the left of the range definition bar. Select another colour and place it to the right, then activate Show to create the familiar spread of colours which we came across in our Fill tutorial.

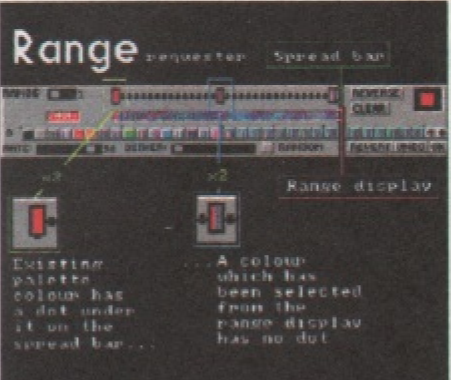
Although the Shown range doesn't reflect the current palette – it is a 'best option' gradient showing all available colours in the palette – it does allow us to pick a displayed colour which is NOT in the current palette. This may all sound confusing, but the palette window which opens up in *DPaint IV* gives you what amounts to a window onto all the Amiga's colours, regardless of your screen resolution, and the constraints that puts on the available palette. Pressing the comma key on the keyboard changes the cursor to the eye-dropper cursor, which picks any colour on screen and makes that the current colour. By picking up a colour in the gradient display (which shows ALL available Amiga colours, remember), and placing it over the second colour you put on the range definition bar, you have defined a range which will cycle on just one colour, leaving your original palette unaffected. And if any part of the new range is the same colour as the background, then the single colour will be invisible for a portion of the cycle. This lends itself to some excellent neon/stroboscopic effects.

TIP: You can tell which colours on the range bar are currently in the palette, because they have a black dot under them.

More sophisticated than its *DPaint III* counterpart, the *DPaint IV* palette requester also sports a mixing area to the right, where colours from the palette can be blended. This area is not restricted to displaying the maximum colours of the mode you're in – the whole gamut of displayable colours is available for you to choose from, then place in the real palette, which is shown along the top line.



Very slight alterations to your palette colours can result in subtle changes in a single colour. Simply by altering the Value or Saturation levels, you can achieve many delicate colours, without having to get involved in the more complicated Red, Green, Blue options.



DeluxePaint IV has the impressive ability to cycle just one colour; sound like a contradiction? Well sort of, until you understand that the cycle range of the one colour is based on one slot in the palette, plus any other colour the Amiga can display – regardless of which mode you're in. Here you can see a range of colours defined which will act only on one colour slot in the palette of 32, but which cycles that single colour from scarlet to pink when Cycling is enabled.

NEXT MONTH

In part five of this tutorial, Peter Lee takes a look at another much neglected subject, text. Most artists take it for granted, but by using techniques we've covered so far you can create great title screens, as well as menus and print outs of ads or handbills.

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WORKBENCH TUTORIAL

Mat Broomfield delves a little deeper into the workings of Workbench to discover how it interacts with other programs.

PART 3

So far, we've only looked at the physical construction of the Workbench: icons, windows, menus and so on. Obviously understanding these is very important in order to use it fully, but now we're going to take a look at the way that it can be used by other programs.

When you load Workbench and open the main window, you'll see a collection of drawers. Open these and you'll find lots of individual tool icons such as Printer, Fountain, Shell, etc. It probably seems that the Workbench disk has a lot on it, and this is true – but for every file you can see, there are at least three that you can't, and these 'invisible' files are just as important as the visible ones, if not more so.

You may well ask 'If the invisible files are so important, why are they hidden in the first place?'. In order for a file to be 'visible' – that is, for it to have an icon which can be seen on the Workbench screen – it needs to be accompanied by a .info file (pronounced dot info). A .info file basically contains information about the icon's physical appearance, and also certain loading information about the file it relates to. The trouble is, .info files occupy around 450 bytes of disk space each, and because space on the Workbench disk is so precious it would be wasteful to give one to every single file on the disk, especially as many of them are never directly accessed by the ordinary user.

The majority of the files on the Workbench disk can't be loaded individually and used as standalone programs in the same way as, say, *DPaint* can. They generally have to be used in conjunction with other programs. Therefore, there would be no point in giving these files icons when they couldn't be used in their 'raw' state anyway.

SYSTEM CONFIGURATION

One of the most important of these files is called system-configuration and it can be found in the Devs directory. This file contains lots of crucial information about your Workbench environment, such as the screen colours, what printer driver you're using, the shape and colour of the pointer, etc. Under version 1.3 of the Workbench and earlier, the system-configuration file is the computer's sole means of determining this information. When you load Workbench, the system-configuration file is also loaded to see how things should be set up.

Workbench 2 and above allow you to specify a number of additional things such as the graphic pattern of the Workbench screen and the input map (for specifying which language the keyboard is configured to accept). For this reason, additional configuration files are needed, and these are stored in the Prefs/Env-Archive/Sys drawer of the Workbench disk.

If you open the Prefs drawer, you will see a number of programs, all of which are connected with setting these preferences. For example, if you load the Printer program, the settings are taken from the system-configuration file. You can then choose to modify those settings in any way you like. Whenever you change the preferences via any of the programs in the Prefs drawer, the system-configuration file is also updated (as are the files in the Prefs/Env-Archive/Sys drawer if appropriate).

Now here's the really handy bit; if you load another program via the Workbench, the new program will use all of the preferences that you've set for the Workbench. This means that if, say, you load a word processor or graphics package, they will automatically use the Workbench printer settings that you specified.

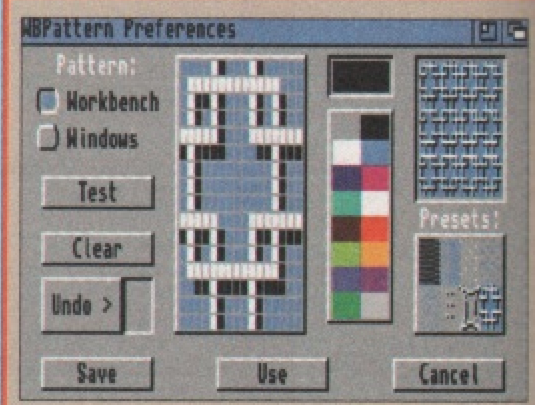
Another useful feature of the system-configuration file, is that you can copy it directly to the Devs directory of another bootable disk and that disk will automatically use the preferences specified.

The other main group of 'invisible' files on the Workbench disk are the commands in the C directory. These commands are used by all AmigaDOS programs and can only be accessed using the Command Line Interface (CLI) or a script (such as the startup-sequence) which is processed in the same way as CLI commands are. On Workbench 2 and later, there is a further way of getting to these commands. By selecting the 'Execute command' option from the 'Workbench' menu, you may enter a command into a small text gadget. This is, in effect, a miniature version of the CLI. If there is any output from the command a window will be opened on screen to let you see the result.

Commands and the way in which they work tends to be where most people get stuck, so it's a subject we'll be coming back to. CU

NEXT MONTH

Mat returns next month, to unravel some more of the mysteries of Workbench, paying particular attention to the arcane mysteries of the CLI.



WBPattern lets you change the appearance of the background against which windows are displayed, and the windows themselves. You can use this requester to create plain or patterned backgrounds and windows. The number and range of colours available for your background are specified in the Palette and Screenmode editors.

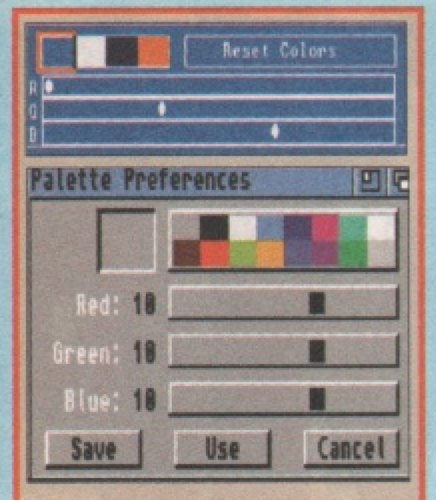
Remember to choose fairly neutral colours, otherwise it will become difficult to read the icon text on the Workbench screen.

Later versions of Workbench allow you to choose an IFF image as a backdrop, but although fun, there are very few images which are easy enough on the eye, although it would be possible to create more extensive patterns.

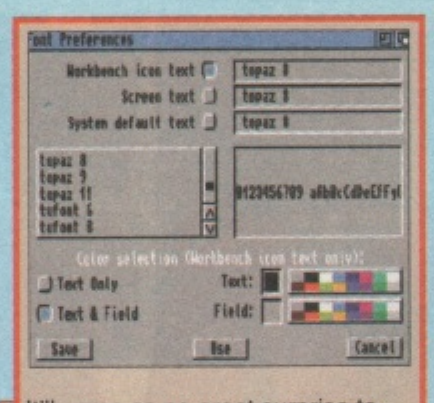
The last editor is called IControl and chances are you'll never need to alter any of the miscellaneous assortment of technical preferences that it contains. They include options to change the way that the screen is refreshed (redrawn) in productivity mode using a multiscan monitor, and the facility to change some of the keyboard shortcuts.

It is sometimes very useful to be able to alter the hotkeys for screen flipping and requestor operations, particularly when they would clash with any hotkeys that you are using in an application.

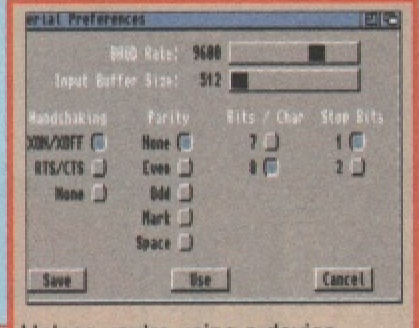
If you select a drag key it is possible to move the Workbench window up and down without having to click on the drag bar at the top of the screen. Again, you will find that this is occasionally useful.



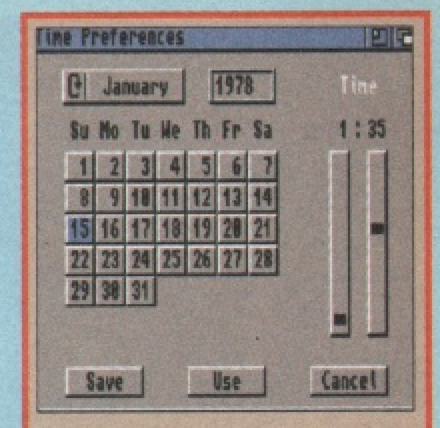
Four programs affect the appearance of the screen. Palette lets you change the screen colours. Workbench 2 lets you use up to 16 colours on screen. The more you select, the more memory you'll need.



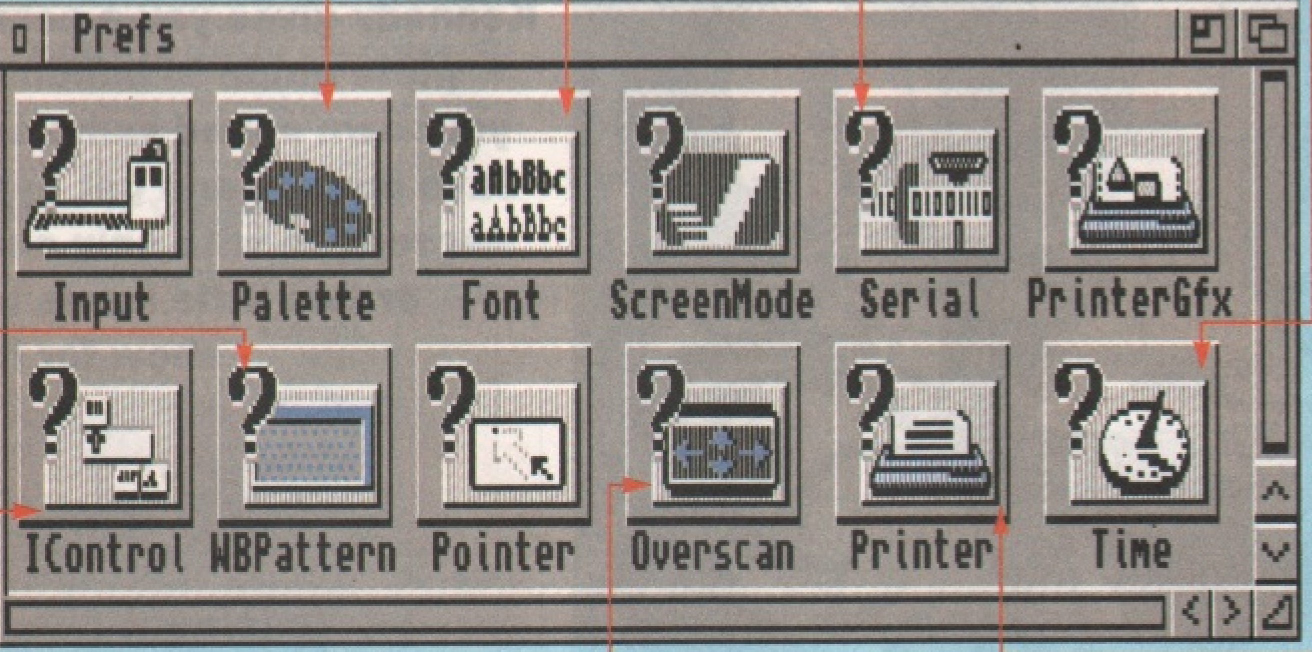
It'll come as no great surprise to learn that Font allows you to specify the font that should be used for all Workbench text output, ranging from the labels beneath icons, to the text used in menus and requesters. Pointer is the last, and least significant, of this group of editors. It changes the appearance of the standard arrow pointer.

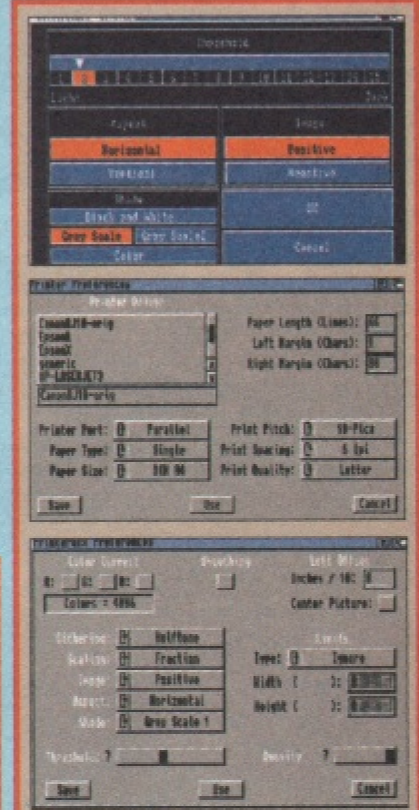


Unless you're using a device attached to the serial port, such as a printer, modem or MIDI instrument, you won't need to touch the icon labelled Serial as this is for you to set the data transmission rates and protocols.
If you do have any of these devices the controlling software usually overrides any settings entered here anyway, so it is not terribly worthwhile bothering with.

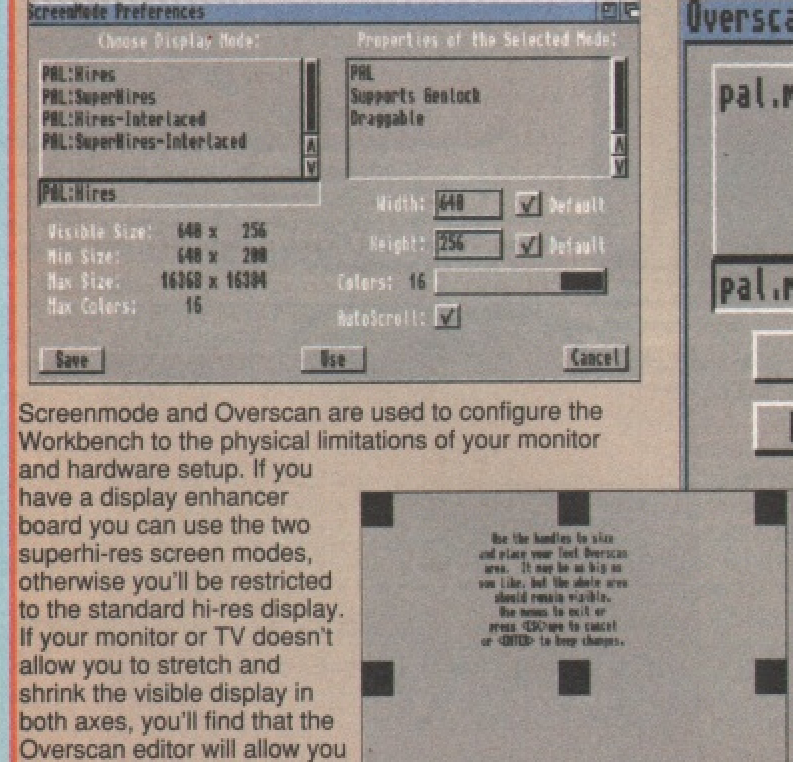


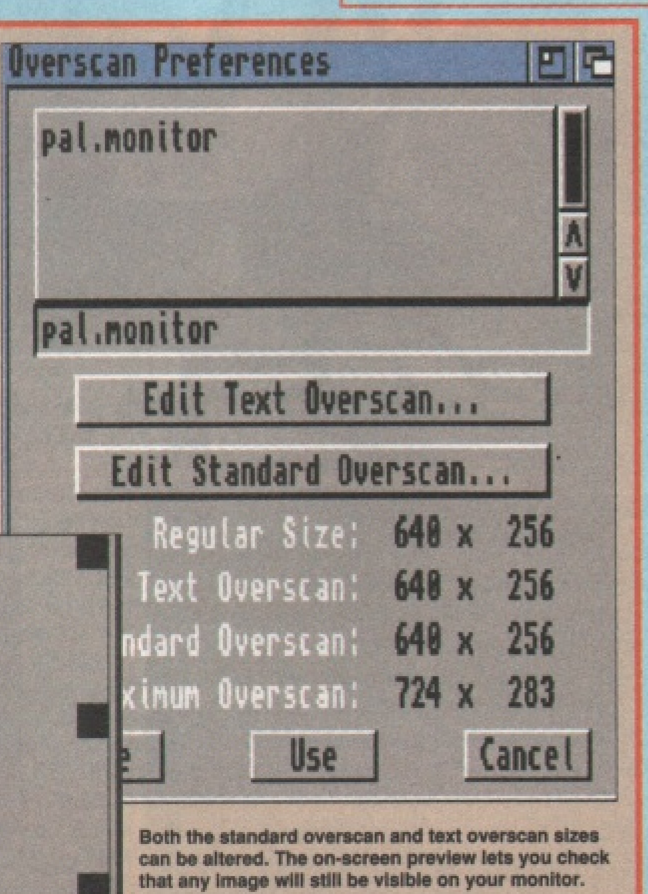
The Time editor lets you specify the system time and date. The A500+ and above feature a battery-backed clock which retains the time and date even when the power is switched off, so in theory you should only have to set them once. In practice, there are many ways that the battery-backed clock can be unset so you'll probably find yourself using this quite often.





Printer and PrinterGfx are probably the most important editors for printer owners. Printer allows you to specify the printer that you will be using and lets you define the basic physical parameters of the printer's operation. You can use this to tell the computer the paper size you'll use and the size and print quality that you require. Of crucial importance is the choice of printer driver used; this is needed to interpret the Amiga's output into information that the printer will understand. A selection of drivers are on the Extras disk, and the appropriate one should be copied to your Workbench disk. If you plan to print graphics (or even scalable text from a program such as *Wordworth* or *Final Copy*) you'll need to set the PrinterGfx preferences.



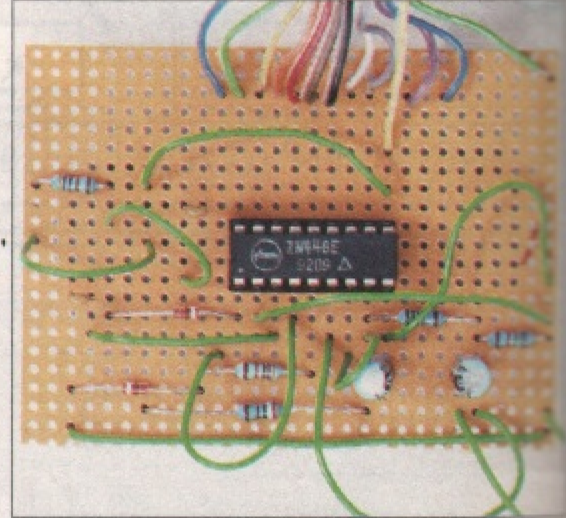


Screenmode and Overscan are used to configure the Workbench to the physical limitations of your monitor and hardware setup. If you have a display enhancer board you can use the two superhi-res screen modes, otherwise you'll be restricted to the standard hi-res display. If your monitor or TV doesn't allow you to stretch and shrink the visible display in both axes, you'll find that the Overscan editor will allow you to adjust the size of the screen display until it occupies as much or as little of the screen as you require.

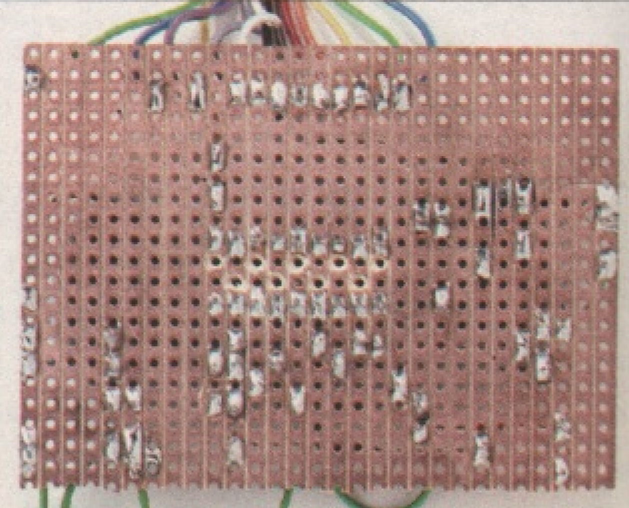
Both the standard overscan and text overscan sizes can be altered. The on-screen preview lets you check that any image will still be visible on your monitor.

BUILD YOUR SAMP

Dust off the soldering iron, the DIY series is back! This month John Kennedy gives you a complete guide to building your own sound sampler. Save pounds and get better results with only one or two little burns to show for it.



It's neat, it's cheap and it's easy to customise to your requirements. Note the orientation of the IC.



The underside of the circuit. Note the cut tracks between the legs of the IC socket – a drill bit or sharp knife is handy for this.

A WORD OF WARNING

We want you to enjoy building your project, so please take the time to read these warnings.

Although the project described here has been built and tested, neither the author nor CU Amiga can be held responsible for any damage which may be caused to either yourself or your computer as a result of using it. As no mains voltages are required in this circuit, it is extremely unlikely that you could electrocute yourself, but you should still take care. If your computer does not behave normally when the project is connected, switch off immediately! Check the circuit carefully for short circuits and wiring deficiencies. Always add or remove the parallel port connector with the computer switched off.

Never leave the soldering iron unattended, and always switch it off when it's not in use. It is all too easy to forget about it and then pick it up by the wrong end several hours later. If possible, wear protective eye-gear when soldering and use a vice or clamp to hold the circuit in place. Never splash hot solder around.

OWN
LER

Sound sampling is a growing business. If you want to capture your own sounds for use in music programs, such as *MED*, or to add sampled speech to your games, you'll need some way of digitising them. You don't have to worry about playing them back, as the Amiga has a sample replay system built in as standard, but digitising is another problem altogether.

Of course, you could buy a ready-made unit from a mail order company, but the more adventurous might like to try building your own. This will save you money, teach you a thing or two about micro-electronics, and it might even be fun.

HOW IT WORKS

In order for the Amiga to capture a sound it must be converted from its usual analogue state into an 8-bit digital form. This process isn't nearly as painful as you might expect it to be, as a special Analogue to Digital IC is available quite cheaply to do all the hard work.

If you take a look at the circuit diagram on the right, you can see the digital output from pins 11 to 18 of the A/D IC. These outputs are in a form which the Amiga's parallel port is able to use directly, so there is no extra interface hardware needed.

The various resistors, capacitors and diodes scattered around the circuit can be divided into three categories:

1. Those needed to process the input sound signal (C4,R5,R6). The capacitor filters any DC components out of the AC input audio signal, and the two resistors cause the waveform to be equally balanced within +/- 2.5 volts.
2. Those needed by the IC for general operation (R1,C1,C2). R1 and C1 are required to enable the IC to work properly. C2 is the capacitor which determines the rate at which the sampling process takes place. This can be altered if desired.
3. Those that are needed to produce the negative voltage required by the IC for the sampling process (R2, R3, C3, D1, D2) The IC requires a -5 volt supply in order to operate, but the Amiga's parallel port only supplies +5 volts. These components form what is known as a 'diode pump', and produce pulses of -5 volts just when the chip needs it.

Operation is controlled by a signal from the Amiga connected to pin 4 of IC1. When this is received, the sampling process begins and the data is passed to the digital outputs. With the ZN448 an 8-bit sample can be made every nine micro-seconds with an accuracy of 1/2 LSB (Least Significant Bit).

For higher quality samples a ZN447 can be used (producing samples with an accuracy of 1/4 LSB, and to save money a budget ZN449 could be used (1 LSB). It's open to question whether the chips will produce samples which sound different; all I can say is that one budget sampler I have seen uses a ZN449, and I used a ZN448. My sampler sounded better.

SAMPLER PROJECT VERO LAYOUT

TO PARALLEL PORT

1 2 3 4 5 6 7 8 9 14 17

RIBBON CABLE

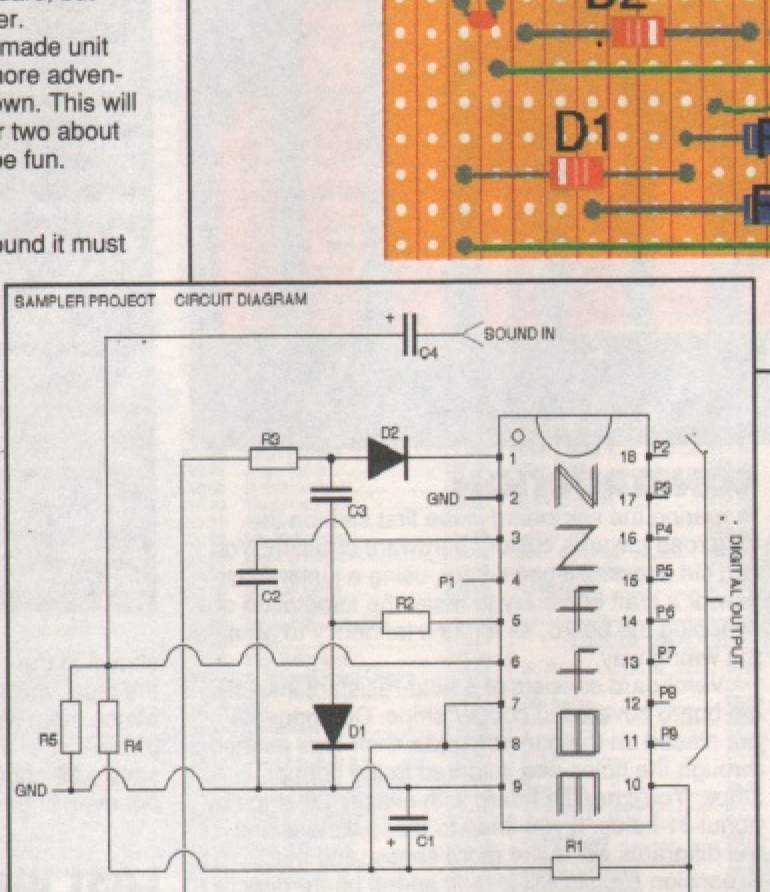
COPPER SIDE DOWN

R3 C3 C2 D2 R4 R5 C4 D1 R2 C1 R1

AUDIO INPUT

GND

Above: If using the suggested method of soldering the components onto Veroboard, you should follow this layout. I did, and my sampler works.



Here's the circuit diagram for the sample. The important parts are the A/D chip (the ZN448), the link to the parallel port and the sound input.

USING THE SAMPLER

First you'll need some sampling software from a PD library. Several packages are available and all should work perfectly. If different samplers are supported, select 'generic'. Some programs work better than others, even to the extent of producing better quality samples, so shop around.

After giving the circuit a final check, switch the Amiga off and connect the parallel plug connector. Switch on, and if the computer doesn't boot as normal switch off at once. Check the pin numbering carefully, especially the five volts and ground pin. Any short circuits could cause the Amiga to continually reset, and possibly cause damage.

When everything is working normally, load the sampling software and connect the sound source. Remember that this project was designed to connect directly to the headphone out socket of a small battery-powered cassette deck – you may need to make alterations to the circuit if you are connecting it to something different. On no account connect the circuit to the loudspeaker terminal of a mains hi-fi! The power of the hi-fi will instantly dispatch the A/D chip to Silicon Heaven, and possibly damage the hi-fi as well. Use only the headphone socket of cassette decks, amplifiers and CD players. If you wish to use the audio out Phono connectors, you will probably need to alter the value of the resistors R4,R5. See later for suitable values.

If your chosen sampling software has a monitoring option, use it to determine when the input volume setting is correct. If it is set perfectly, the signal will fill the display, without overloading and so possibly distorting.

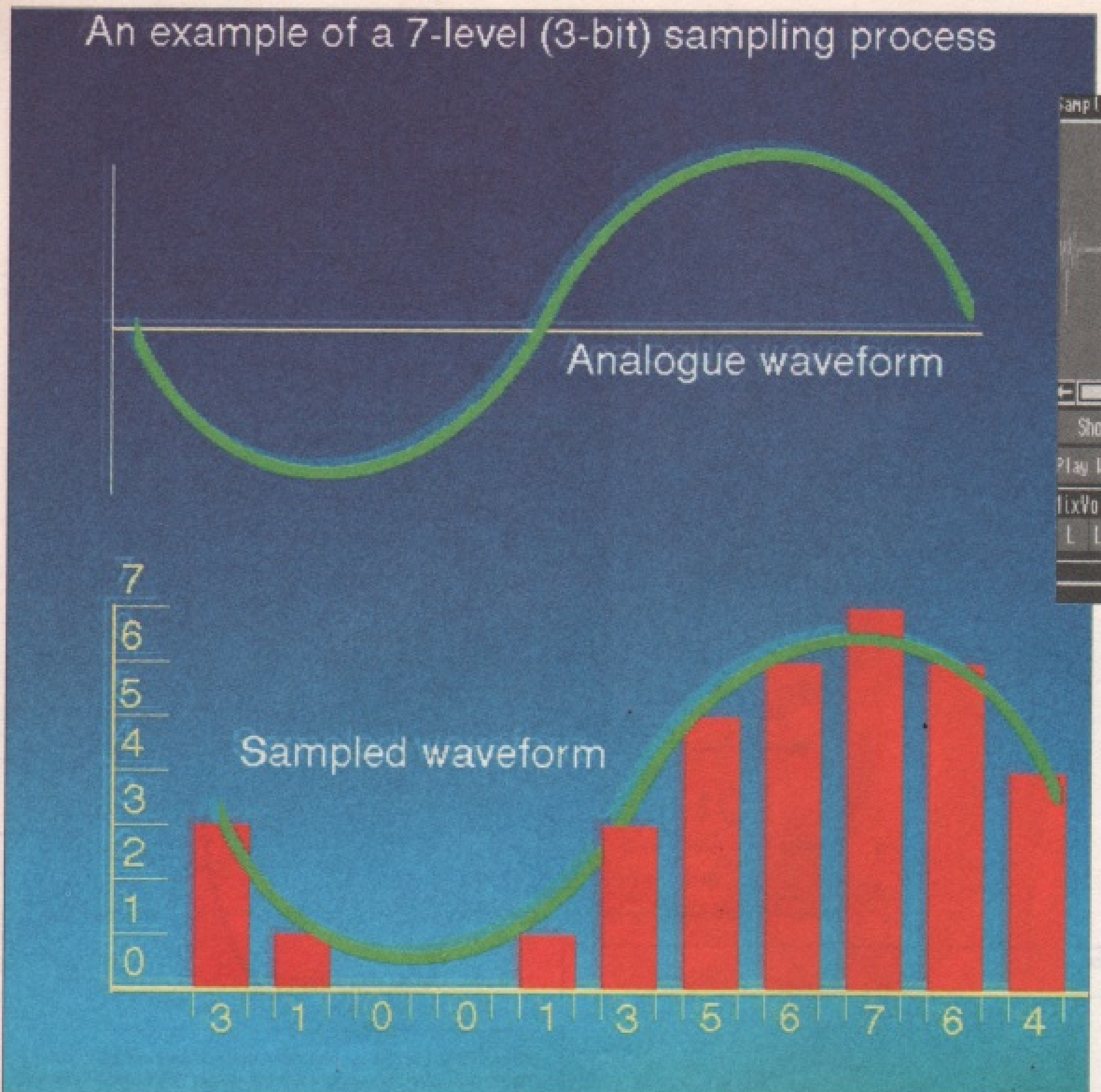
Now set the sampling frequency to about 8KHz for starters, and sample! Experiment with different volumes and sampling rates for best results.

THINGS TO COME...

In the not too distant future we'll be looking at how we can expand the sampler described here to work in stereo, with only minimal alterations. We'll also be looking at how the sampler can be adapted to interface with a whole host of other gadgets, from light meters to electronic weighing scales. Don't touch that dial!

»

»



Above: In this diagram an analogue waveform has been sampled and converted into a 3 bit number (from 0 to 7). Our sampler works in a similar way, but as it is accurate to 8 bits, 256 different levels are allowed.

Below: Here the sampling program *Audition 4* is being used to grab a sample. The oscilloscope mode shows whether the volume is too low or too high.

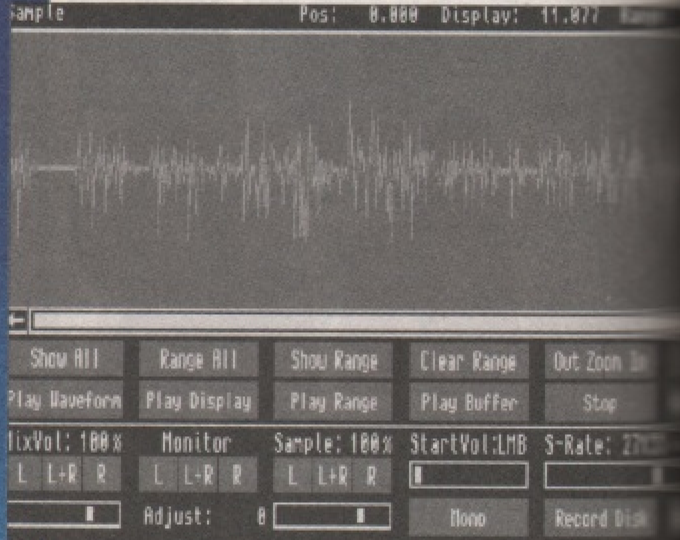


TABLE OF PARTS

IC1	ZN448E A/D (or ZN449E or ZN447E - see text)
R1	390 Ohm
R2	47K
R3	4K7
R4,R5	15K
C1	7uF
C2,C3	470nF
C4	100uF
D1,D2	1N914

18-pin IC Socket Ribbon cable (14 way)
Audio socket (depending on your system, typically 3.25mm jack socket) 25-way male plug and casing
Vero board (30 tracks by 22 holes)
Solder connecting wire
Typical cost: £10-20 depending on choice of A/D chip and box.

WHAT DO YOU THINK?

Could you follow this article? Were the text and diagrams clear enough, or far too simple? Would you be interested in buying a ready-made Printed Circuit Board to simplify construction? Or a complete kit of parts? Or even a ready-built sampler? And if we ran a project on building a 16 bit sampler and player would you be interested? What other hardware do you want to see? Write to DIY at the usual address with your comments.

CONSTRUCTION

Preparing the veroboard is the first step on the long road towards custom hardware creation. You can cut it to size if necessary, using a junior hacksaw or a craft knife. Try to resist the temptation of snapping the board, as it has a tendency to break the wrong way.

Veroboard consists of a heat-resistant insulating board covered in copper strips. Components are placed on the non-strip side, their legs pushed through the holes and soldered to the copper strips. You'll need a board with exactly 29 strips by about 21 holes. If you keep to these dimensions, the diagrams will make more sense, and the expansion circuits will also fit on the board directly.

Nine holes must be made in the copper tracks as shown in the diagram on page 160. These holes should be located underneath the IC, and must break the tracks totally, with no swarf bridging the gap between tracks. Check with a multimeter if possible.

Now the components can be placed on the board and soldered. Start with the IC socket, as this will help you to position the other components. Solder the resistors, capacitors and diodes into place, noting the orientation of capacitors C1,C4 and the diodes D1,D2. The diodes are heat sensitive, so be as quick as you can when soldering them. A trick is to attach a crocodile clip to the diode's leg to act as a heat sink. Be careful with the resistors, as the colour codes for 4K7 and 47K will be very similar.

Solder the wire links in place (all nine of them) and wire up the ribbon cable. If you use 14-way ribbon cable, the remaining wires will come in useful later on. In the meantime, we need +5 volts, ground, eight data lines and one control line. They are connected to the 25-way parallel plug as shown in the diagram. If you look very closely at the plug, you'll see tiny numbers beside the pins. Match them with the diagram and solder them in place. Try to use as short a length of cable as possible – 30 centimetres seems to be a good length, but even shorter would be better.

ALTERATIONS

The best thing about building your own sampler is that you can tailor it exactly to your needs. For example, the choice of R4,R5 was made to suit the output of my personal stereo headphone socket. You might find that the signal from your source is too loud or too soft. By altering the value of the resistors – perhaps by using variable resistors – you can ensure your samples will be of optimum quality. The suggested values of R4,R5 are 15K, but try 8K or lower if your source is too quiet. Always use resistors of the same value, or the signal will not be balanced and quality will suffer.

The choice of C2 was made by experimenting with different frequencies available from the sampling software. For frequencies higher than about 30KHz, you may obtain better results with smaller value capacitors. Try using a variable capacitor to allow fine-tuning.

I can guarantee that by adjusting R4, R5 and C2 you will obtain results which will be a lot better than most budget samplers costing up to £50, so not only will you save money, but you'll sound better too!

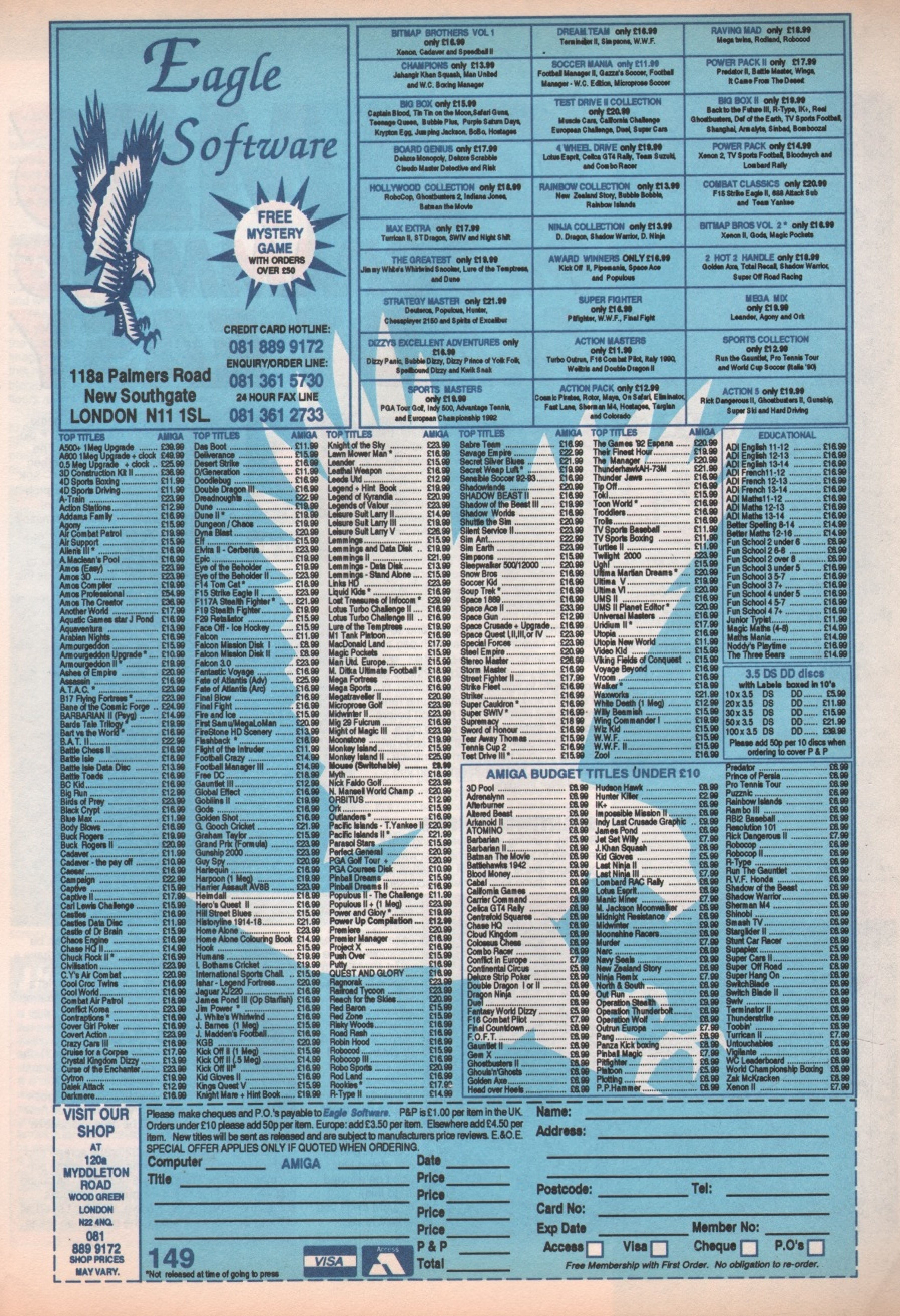
LAST BUT NOT LEAST

Finally the audio input wires and connector need to be soldered up. The type of connector that you choose will depend on your specific needs. Again, keep the wires as short as possible – if they're more than a few centimetres long, you'd be wise to use screened cable to cut down on interference and attenuation.

Check all the wiring and place the IC in the socket. Try not to touch the pins of the IC, and don't do it while wearing rubber soles on a nylon carpet or the static will zap it. The IC will have a notch out of one end, and possibly a dot too. The dot indicates pin number 1. Check the notch with the diagram. CU

NEXT MONTH

CU's own mad scientist will be looking at ways to expand this month's project. You might think it's just a sound sampler, but as you'll find out it is in fact a very versatile transducer interface. Well, that's what he tells us anyway...



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GAMES PROGRAMMING MADE EASY

This month, Dave Smithson gets you started on our very own AMOS version of the one and only PacMan. To get the show on the road he takes a look at screens, icons and maps.

PART 2

If last month's clutch of programming tips hasn't already blown a fuse, then you're probably ready and willing to get started in the fascinating world of AMOS games programming.

The game that we'll be attempting to write over the next few months is none other than that housewive's favourite, *PacMan*. OK, it can hardly be described as leading edge stuff, but as we said last month, it's always best to start with something simple – and let's face it, there's nothing simpler than *PacMan*!

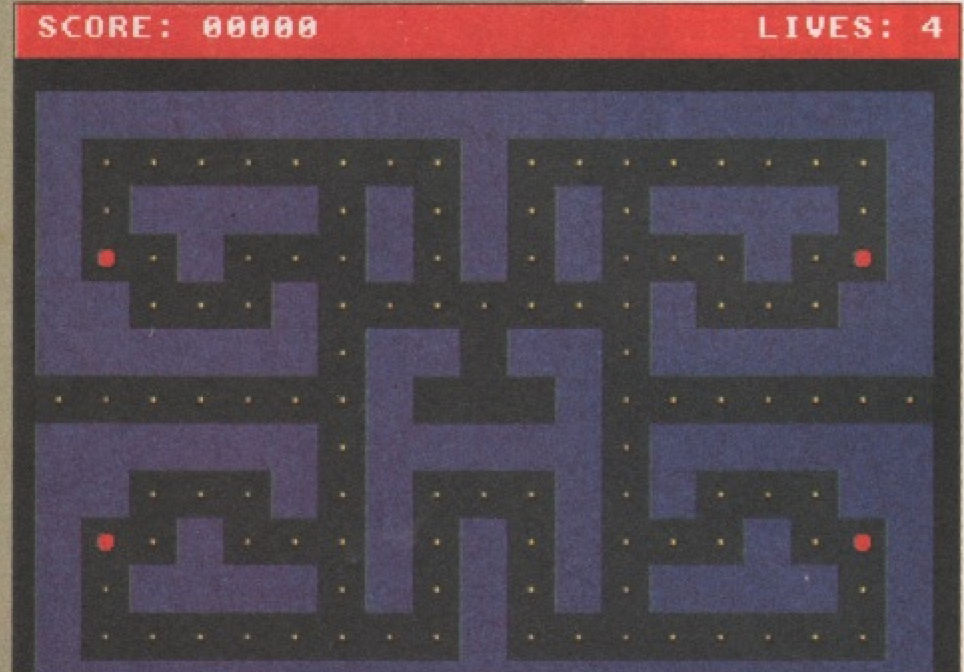
So where do we start? Well, the first thing that you should do is to switch off your Amiga, pop the kettle on, and settle into your favourite armchair with pen and paper in hand.

Most of you are probably raring to get something to appear on your screen, but it's vitally important to plan a game (and indeed any programming project) before you start committing yourself to code. If you just sit down and bash out code off the top of your head, I can guarantee that you'll create more problems than you could ever imagine.

STARTING POINTS

Start by thinking about everything that's involved in your game. The best way to go about this is to think of it in terms of the main game loop that we discussed last month. In the case of *PacMan*, we know that we need a routine to handle the drawing of the game screen, another to handle the player's control of PacMan around that screen and another to stop our favourite arcade character from walking through walls (even the ghosts that chase him won't be allowed to do this). Straight away you should have

After this month's instalment, you should be able to get a display similar to this!





realised that simply holding the game screen in a memory bank as an IFF picture is going to create problems. The amount of memory that such a screen takes up is a minor consideration – 30K is hardly going to cause us major problems – but how do we keep track of PacMan's movement around the maze? We could use collision detection between the PacMan sprite and the background, but it would be simpler to just use a game map. Not only does this save valuable memory (the game screen can be generated using this map data), but we also have a way of confining both PacMan and the ghost's movements around the maze. First, though, let's take a look at the code that sets up the game map.

TABLE 1

```
        Dim MAPDATA(13,19)
        For A=0 To 12
        For B=0 To 18
        Read MAPDATA(A,B)
        Next B
        Next A
Data 2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2
Data 2,3,3,3,3,3,3,3,3,2,3,3,3,3,3,3,3,3,2
Data 2,3,2,2,2,2,3,2,3,2,3,2,3,2,2,2,2,3,2
Data 2,4,3,2,3,3,3,2,3,2,3,2,3,3,3,2,3,4,2
Data 2,2,3,3,3,2,3,3,3,3,3,3,3,2,3,3,3,2,2
Data 2,2,2,2,2,2,3,2,2,1,2,2,3,2,2,2,2,2,2
Data 3,3,3,3,3,3,3,2,1,1,1,2,3,3,3,3,3,3,3
Data 2,2,2,2,2,2,3,2,2,2,2,2,3,2,2,2,2,2,2
Data 2,2,3,3,3,2,3,2,3,3,3,2,3,2,3,3,3,2,2
Data 2,4,3,2,3,3,3,2,3,2,3,2,3,3,3,2,3,4,2
Data 2,3,2,2,2,2,3,2,3,2,3,2,3,2,2,2,2,3,2
Data 2,3,3,3,3,3,3,3,3,2,3,3,3,3,3,3,3,3,2
Data 2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2
```

THE NUMBERS GAME

As you can see from the code above (Table 1), the map data is held in memory as a two-dimensional array that is 19x13 'array elements' in size. Because each element represents a single block on the screen, we have to carefully calculate how many of these blocks we will be able to squeeze onto the screen.

Because we'll be using a 320x256 screen and each block will be 16x16 pixels in size, some simple mathematics are all that is needed to calculate that we can squeeze a maximum of 20 blocks across the screen and 16 down. We don't need all of these blocks: for starters, the game map within

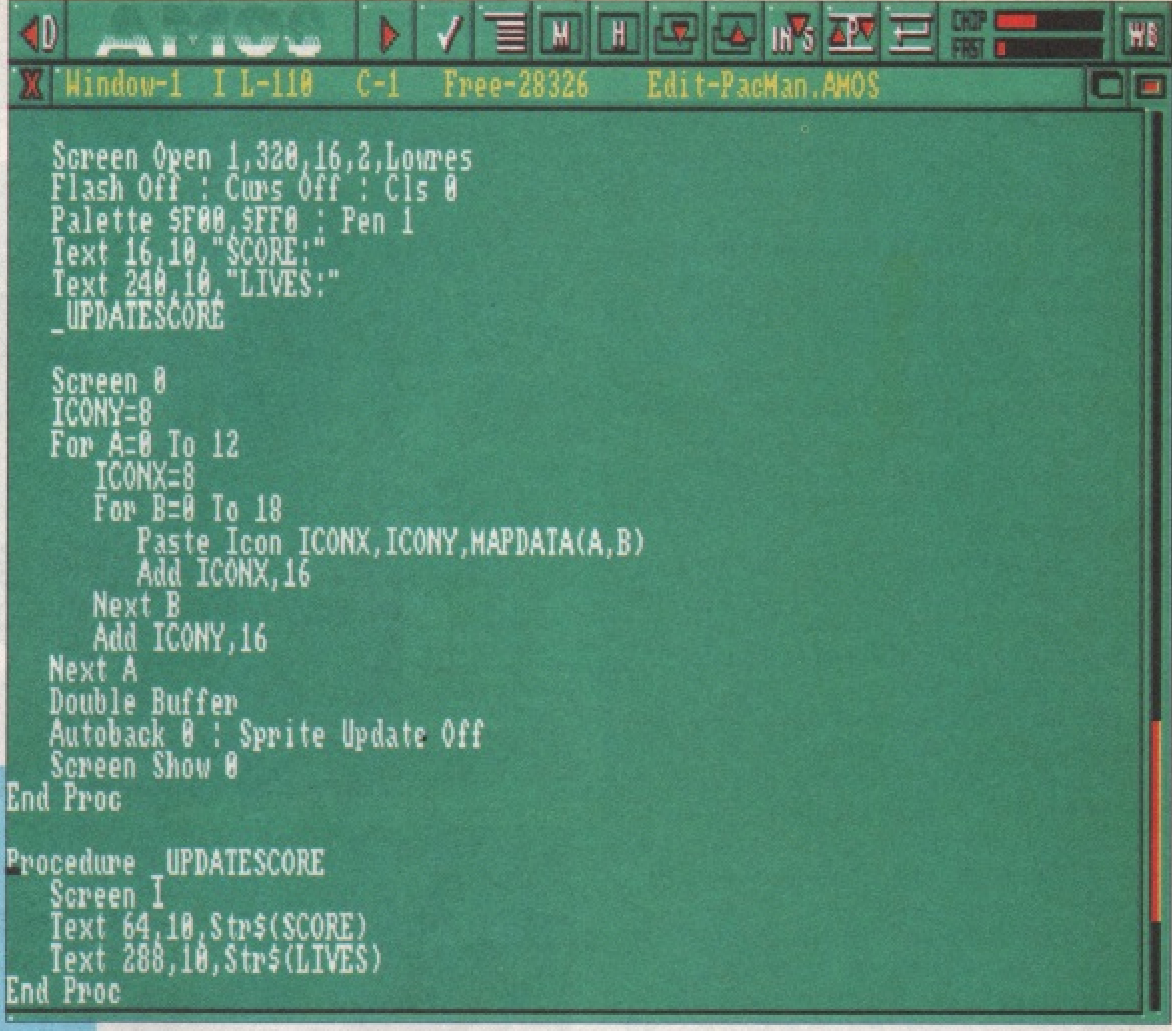
PacMan games is never an even number of blocks down and across, so we can start by knocking one off the horizontal, leaving us with 19 blocks across. On top of that, we need some space to put the status bar in (the bar that holds the player's score and lives etc), so we can also lose three blocks from the vertical.

MOVING ON

Now that we know how large our game map must be, the next step is to fill the map array with the numbers that will define which blocks are walls and which are floors.

The easiest way to do this is to tie the numbers that you use to designate the scenery type in with the icon bank that we'll use to store the block image data (or 'icons', as AMOS calls them). In this particular case, let's use a '1' for a totally blank floor, a '2' for the walls, a '3' for the normal floors and '4' for floors with power-ups.

Using this key information, you should be able to decode the game map yourself to produce a familiar *PacMan*-like maze. However, if you would prefer to create your own, feel free to change the data yourself.



Very little code is required to get the screen drawing routine up and running.

TABLE 2

```
Screen Open 0,320,224,16,Lowres
Flash Off : Curs Off : Cls 0
Get Icon Palette
Screen Display 0,,70,,
Screen Hide 0
ICONY=8
For A=0 To 12
ICONX=8
For B=0 To 18
Paste Icon ICONX,ICONY,MAPDATA(A,B)
Add ICONX,16
Next B Add
ICONY,16
Next A
Double Buffer : Autoback 0 : Sprite Update
Off
Screen Show 0
```

Next we need some code that will draw the game screen using this data. Before we go any further, we'll need to load up the AMOS Object Editor and draw some icon blocks that the screen drawing routine can use. For more information on this, check out the box on page 166. Once you've created a bank of icons, load them into AMOS using the Load 'bankname.abk' command and you're ready to rock. Table 2 (above) shows the screen drawing routine.

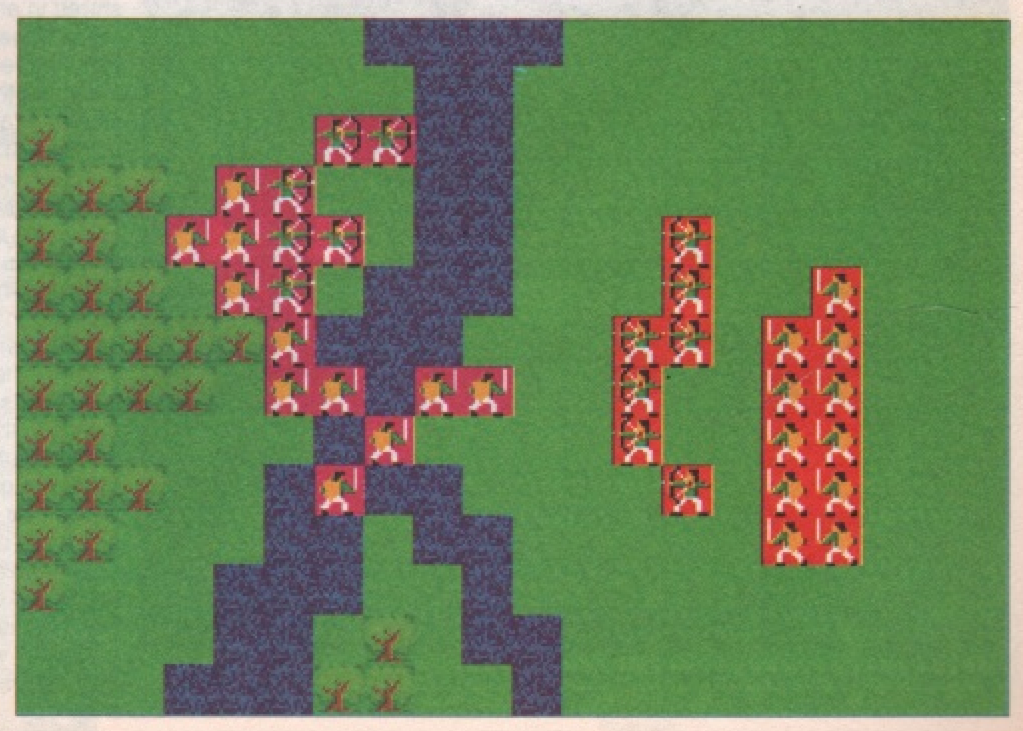
CUT 'N' PASTE

If you study the code in Table 2 carefully, you'll see that it's actually a very simple routine indeed. It starts by opening a 16-colour screen that will be used to hold the game map display. Note that the vertical size of the screen is restricted to just 224 pixels – we could have opened it to a full 256 pixels, but there's little point as the status display would obscure the extra lines. We can save ourselves a few kilobytes by knocking the extra few lines off the bottom of the screen. Next, the code turns off AMOS's automatic colour cycling facility (annoying at the best of times!), the text cursor is switched off and the screen is then cleared using colour zero. We then set the screen to the same palette as our icons by grabbing the icon bank's palette using the Get Icon Palette command. The screen is then positioned using Screen Display so that we can open a small screen at the top of the display that will eventually hold the player's score and lives etc.

Now we can start drawing the screen using the data held in the mapdata() array that we defined earlier. Two loops are used to handle the task of drawing the icon blocks onto screen. The first controls how many lines of blocks are drawn (in this case, 13) and embedded into this loop is a second loop that controls how many blocks are drawn across the screen (19). The routine uses the two loop counters 'A' and 'B' to interrogate the data held within the mapdata() array. So, if A equalled '2' and B equalled '3', the screen drawing routine »

JARGON BUSTERS

- ICON – In AMOS terms, an icon is a rectangular graphic that can be used as a building block for constructing screen displays. The same icon can be pasted down again and again to produce some quite complex screen displays using a minimal amount of memory.
- SPRITE – Throughout these articles, we'll be describing the animated objects that you see moving about a game's screen as 'sprites'. You should note that sprite is used as a generic term to describe both blitter objects and 'real' hardware sprites. Wherever necessary, a distinction will be made.
- BOB – Short for Blitter Object. Bobs are graphic objects that can be moved around the screen and even animated using the Amiga's blitter. Unlike the Amiga's own hardware sprites (which aren't part of the screen bitmap), blitter objects are not restricted by size or the number of colours that they can contain.



Our screen drawing routine isn't just restricted to *PacMan* games – here's an *Ultima*-like war game that I wrote several months ago.

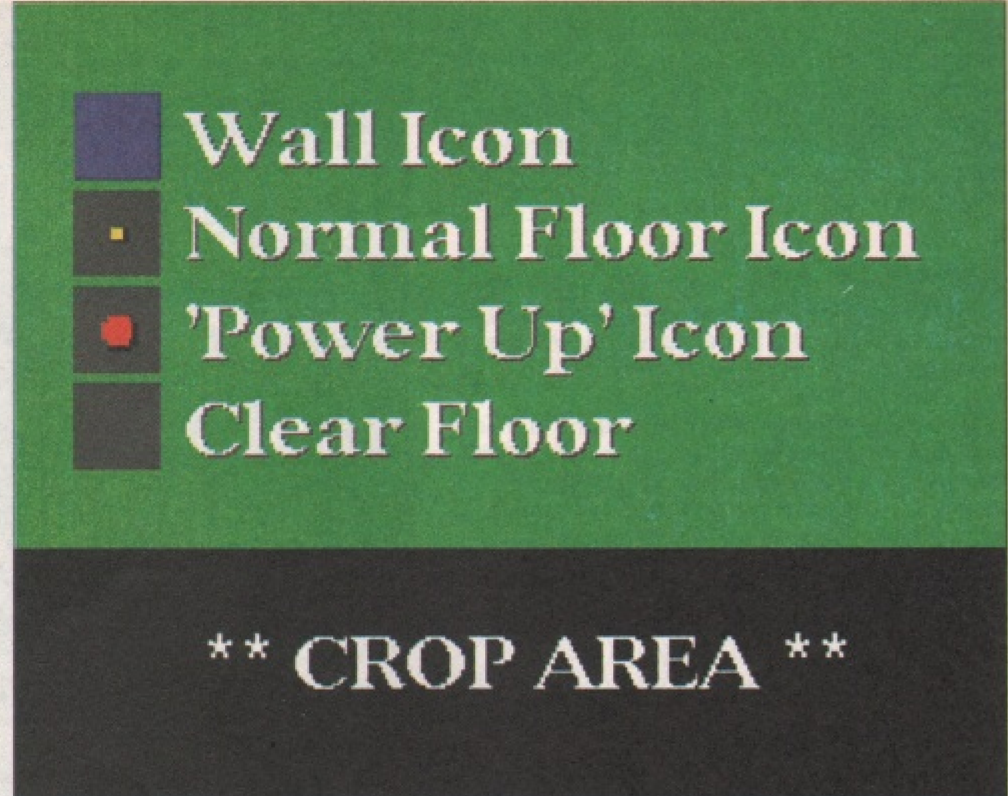
DESIGNING ICONS

Designing a set of background icons isn't just a matter of banging out some pretty pictures in *DPaint* or the AMOS Sprite Designer. Before you start punching pixels, the first thing you must establish is how many colours each game screen uses, how many are available for the background blocks and which colours are to be used.

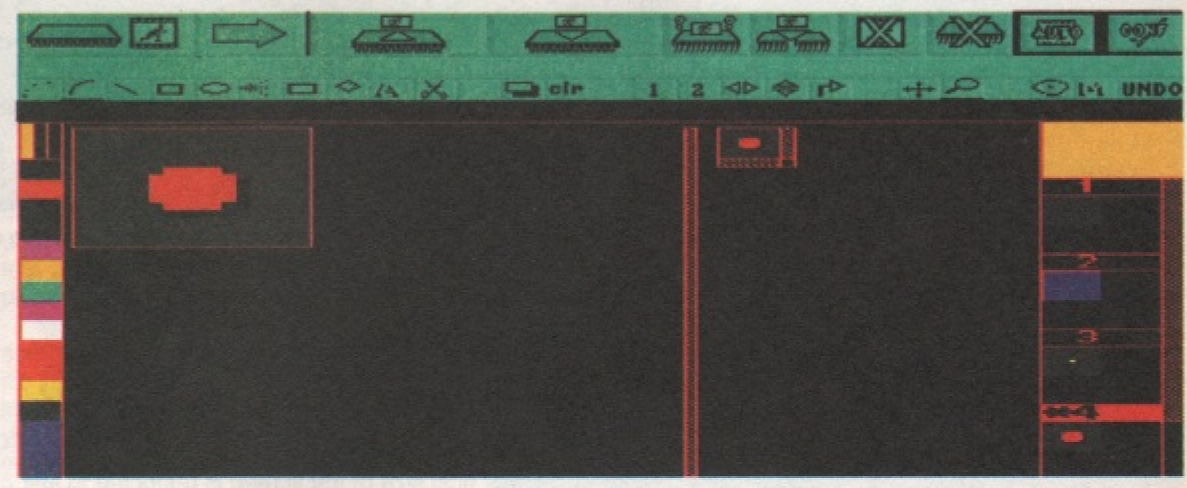
Although it is generally true that the more colours you use on screen, the more attractive the game, using colours unnecessarily will not only look messy, but it will also slow your game down. Don't forget that the more colours you use, the more bitplanes the Amiga's poor old blitter has to shift around when redrawing any blitter objects (the PacMan and ghost sprites, for example). Our *PacMan* game doesn't really need a lot of colours, so I've restricted the display to just 16. We could have got away with eight, but it would have looked rather dull.

Next, we need to decide how many of these 16 colours are actually available for the background icons. Don't forget that we'll also need some colours for the blitter objects, so we need to carefully calculate what colours should be assigned to our icons, sprites etc.

Because both our sprites and our icons will share the same colour palette, it's worth defining a 'global' palette that holds the colours of all our sprites and icons in one place. In this particular case, we'll be designing our icon blocks before we design our sprites, so we'll make the icons' colour palette our global palette (hence the Get Icon Palette command in the screen drawing routine). Once this is decided, draw your blocks in 16-colour mode, remembering to use the same colour palette when you come to design your sprites. If you're using *DPaint* to design your icons, they will have to be cut out and inserted into an AMOS Icon bank using the AMOS Object Editor.



The entire *PacMan* screen is built up from just four 16 x 16 pixel icons.

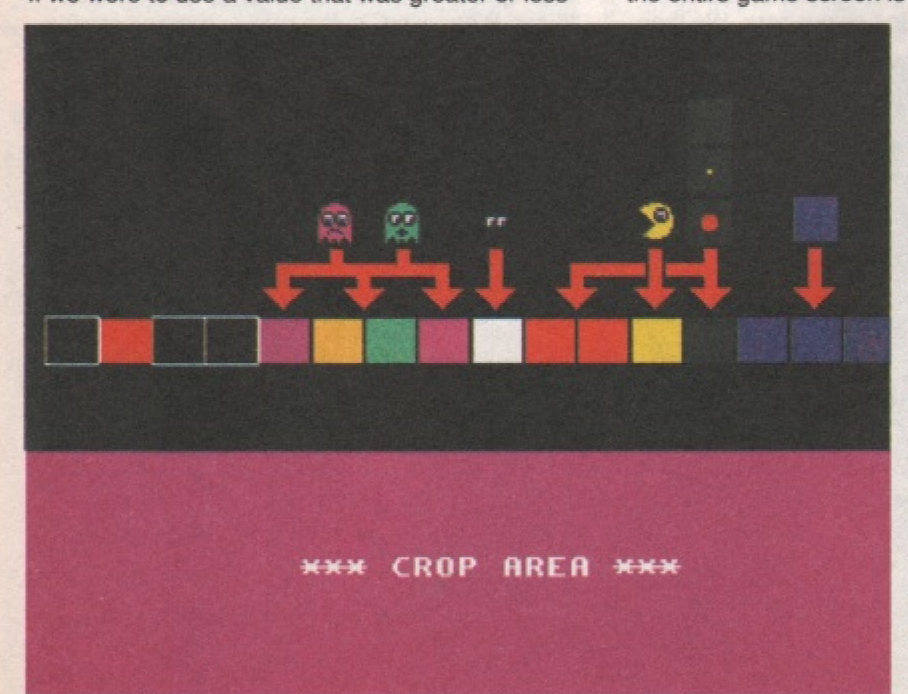


Once you've decided upon your colour palette, you can start designing your icons using the AMOS Object Editor.

» would read the value held in mapdata(2,3) which, using the data we created above, would give a value of '2' (don't forget that the first element within an array is 0 and not 1!).

Note the use of the ICONX and ICONY variables. These have nothing whatsoever to do with Shell commands – they're actually used to keep track of the screen co-ordinates where each new icon block should be positioned on the screen. Both are initially set to a value of 8 and as the two loops progress, a value of 16 is added to them to offset the position at which the Paste Icon command pastes down our icon blocks. A value of 16 is used because this is the size of our icon blocks. If we were to use a value that was greater or less than 16, the icon blocks would either overlap or spaces would appear between them.

It's worth noting the use of the Screen Hide and Screen Show commands. These aren't really necessary, but they are worthwhile and give the finished product a bit of polish. Because the screen must be drawn a block at a time, displaying the entire game screen is slightly slower than simply unpacking a picture stored in an AMOS memory bank. It also looks rather unprofessional for the game screen to appear block by block in front of the user's eyes – we're not programming for the Spectrum after all. We therefore use the Screen Hide command to blank the screen until the game screen has been drawn. Finally, once the screen has been redrawn, the routine sets up the double buffering system required for flicker free animation and turns off AMOS's automatic screen flipping and blitter object update (we'll be handling this ourselves within the main game loop).



Allocating colours before you commit yourself will make the task of designing sprites and icons considerably less troublesome.

SPRITELY CHARACTER

We now have a routine that stores the map data in a compressed format and then draws that data onto the screen using icon blocks. If you wanted, you could add a routine to your game that allowed additional screens to be loaded from disk. All you would have to do is to store the map data on disk in the same format as the data statements printed above and then read them into the map data () array. This method of storing game maps even lends itself well to game designers, giving the player the option to create their own screens.

Maps can contain all sorts of data, including bonus information, extra life awards and so on. It is very rare for any maze game or shoot 'em up to be made without a map.

If you find the thought of all the calculation for handling the blocks a little too much you can always get hold of the TOME extension system, reviewed in CU's January issue. It takes some of the fun out of designing your own games though, and it is still useful to get you used to thinking of the game screen as a grid of blocks. CU

NEXT MONTH

Next month we'll be taking our first steps into the actual mechanics of the game by placing a PacMan sprite onto the screen and allowing the player to move him around the screen using the joystick. In the meantime, see if you can write the first part of the game using the code that has been covered this month.

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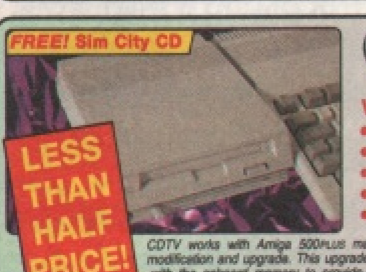
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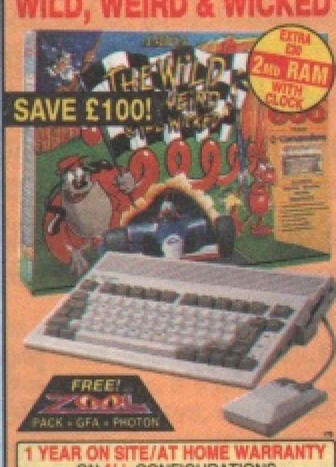
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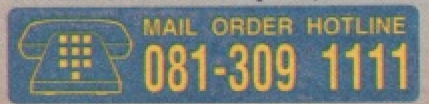
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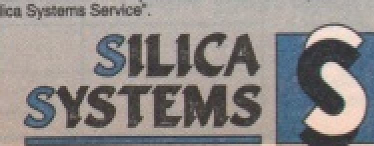
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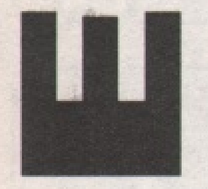
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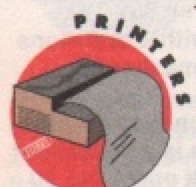
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If your Amiga's giving you jip, don't toast its innards with a flame thrower. Merely put your computing problems to Mat Broomfield who'll seek to wipe your fevered brow.

I BEFORE EEE EXCEPT AFTER C



I own an A600 and a Commodore 8023P printer apparently sporting an IEEE connection. Is there any way of connecting it to my computer? It's a manly brute *[just like me then – Dan]* and built to last, so I'd like to hook it up.

I'm an electronics hobbyist with C&G qualifications so constructing an interface would not be a problem if I knew where to get a circuit diagram.
J. Revell, Maldon, Essex

Until your letter, I'd never even heard of IEEE connections, but after a bit of research, I've discovered that the abbreviation refers to the Institute of Electrical and Electronic Engineers, and is synonymous with a special way of connecting printers as direct output devices to scientific and measuring instruments, etc.

Depending on the exact specification number of the interface, you may find that it is compatible with a standard Centronics port, but I don't have pin assignments. Unless a knowledgeable reader knows differently, I suspect that you're not going to be able to use your printer with the Amiga.

MORE MEMORY



I decided to buy an Amiga after reading your magazine, but having bought it can you tell me if it's worth adding more than 1Mb memory to it? I only use it to play games, demos and music with samples.

If I fitted 4Mb to the Amiga, would it still be compatible with all disks? Are all RAM expansions above 1Mb fast RAM?

Considering what I use it for, is it worth upgrading from a Kickstart 1.3 to a 2.04 set-up?
Abdul-Aziz Jaber, Riyadh, Saudi Arabia

As games become increasingly sophisticated, they make better use of available memory, and the amount of memory that they require is slowly increasing. There are already a few games that need more than 1Mb to run fully, and you can expect this situation to become increasingly common in the future. Therefore, whilst it's not essential for you to add more than half a meg, you will probably benefit.

There are rumoured to be a few programs that don't like too much memory, but I've never encountered any of them. In any case, additional RAM can usually be switched off using either software or a physical switch on the expansion board.

A 2.04 Amiga will give you 1Mb of chip RAM which can sometimes be useful for sound and graphics purposes. Other than that, you're better off sticking with a 1.3 machine which is capable of loading virtually all Amiga games, unlike its newer cousin.

DODGY DATABASE



I run a small company and I need a program which will give me the facility to enter and store large amounts of publishing information, which then needs to be sorted into alphabetical order and printed.

I inherited a copy of *Prowrite* with the computer and, having loaded it, I proceeded to type in the information I needed line by line. When I came to print the details to a list suitable for mailing, only one page printed and a picture of a disk and a message subsequently appeared under the Ram Disk and Workbench saying DF0:NDOS. Is it possible that the disk is faulty, or does it just need some minor adjustment?

In a further attempt to get my lists printed I bought a PD disk called *Amibase* but, although it prints lists, they are five or six lines long in each field and are therefore useless for my purposes.
E.M.Fowler, Whitchurch, Cardiff

***Prowrite* is a word processor and although you can use it to print lists of information in the way that you're doing, it's primarily designed for writing letters, essays, reports and so on. When you need to create alphabetical lists of information, a database is almost certainly a more appropriate program because it enables you to alter the way in which the information is stored much more easily. Let's suppose that you want your lists arranged in reverse order. With a word processor this is a tiresome task requiring you to change every single item individually. Using a database, a single command is all it takes.**

As for your printing problems, I must admit to being a little baffled. In the first place, you are describing two distinctly different problems. The fact that a disk and the words DF0:NDOS appear indicates that you've recently inserted a disk in the internal drive which doesn't conform to AmigaDOS (DOS=Disk Operating System) specifications. There are numerous reasons why this could be so: perhaps the disk is new and hasn't been formatted yet, or maybe it contains a commercial program (such as a game). Alternatively, it may have at one stage been an AmigaDOS disk, but has now become damaged. In any case, the fact that you've managed to print one page of information makes it clear that *Prowrite* already has all the files it needs regardless of the status of the disk in DF0:. Perhaps your printer preferences are set wrongly. Are you sure that the number of lines (page length) is appropriate for the size of the paper you're using?

Anyway, I think that you'll discover that *BBase 2* will be more suitable for your requirements. You can get it from any PD company for a couple of pounds – check out the ads in this issue of CU Amiga.

MODEM MANIA



I write in the hope that you will share your modem knowledge with me. I would love a modem to tinker with, but I need to know the running costs so I can persuade my parents to buy one.

I'll probably have to pay my own phone charges and as my pocket money isn't too hot, I need to know the weekly charges, and how much line time that gives me. Since I live in Southern Ireland and there are no bulletin boards in this area to my knowledge, I suppose I'd have to contact British boards. Do I have to pay extra as a foreign user?
Mark Basquille, Castlebar, County Mayo

Once you've bought the modem, you can run it for no more than the cost of your phone bills if you're selective about the services you access. There is a global network of free bulletin boards known as Fidonet which has more than 10,000 nodes (individual boards). Although there may not be a node in your home town, there's almost certainly one close to you.

Of course, if you want access to a wider range of services or conferencing facilities, you may need to join a subscription board such as CIX or Compulink. These usually start at a couple of pounds per hour and go up in cost. As these boards are nothing to do with the telephone companies, their charges are in addition to your phone bill.

A1200 MONITOR



As soon as I heard about the A1200's 256 colours, I traded in my A600 and bought one. What I want to know is, would a Philips CM8833 Mk2 or a Commodore 1084 be able to display all 256 colours?

At the moment I'm using a Toshiba TV with a Scart RGB input and the picture is good. Would either of the monitors that I mentioned be better than my current set-up?

I only use the A1200 for games, and I haven't had any problems loading them so far.
P.J. Cawser, Birmingham

Either of the monitors you mentioned can display the A1200's 256-colour display; they've been coping with the A500's 4096 colour HAM mode for years! In fact, they can cope with full 24-bit output. As you only use the computer for games, these monitors will greatly improve the clarity and colour definition of your display. I prefer the Commodore 1084 as I find that the Philips tends to have some minor colour focus problems which can cause tiny but noticeable 'shadows' around areas of great contrast.

RUN BEFORE YOU WALK



I have an A500+ with no additional memory and I'm considering buying a 32-bit accelerator. I'd like to know if I can still run 500+ games, and also if I could run A1200 games with such an accelerator.
Steven Watts, Cardiff, Wales

Most games will run even with an accelerator. For those that don't, the accelerator can always be switched off. However, the fact that the A1200 features a 68020 accelerator as standard is just the tip of the iceberg. There are far more differences between the two machines than that, and there's absolutely no chance at all that 1200-specific games will work on your 500+ just because you've fitted an accelerator.

An accelerator will enhance your computer greatly if you use it for more than just games, but if that's all you use it for, I would suggest that you'll get far more benefit from extra memory, or perhaps even a cheap hard drive if you play a lot of strategy games.

SETMAP SUFFERING



I have been tearing my hair out now for many weeks trying to make use of the Setkey and Setmap commands without any joy. I already have a command to display my pictures but I would like to have a few options from there on, i.e., to load different utilities, etc.

How do you make a keymap? What drawer do you put it in? How do you execute the setmap command for your keymap?
Matthew Morgan, Neath, South Wales

It sounds as if you're trying to put together a compilation disk containing a title or menu screen which is displayed as an IFF screen, and a selection of options which can be executed with simple keypresses.

To do this successfully there are a number of stages which you have to go through. First you need to work out what programs you want on your compilation disk and put them onto your freshly formatted (and installed) disk. Test that they all load by typing the appropriate launch commands from CLI. Most of the time this will simply mean typing their name such as 'Powerpacker' or 'SID', but occasionally you'll need to give additional parameters such as 'Modplayer music.mod'.

When you're sure that the programs all work well and you know the appropriate launch commands, you're ready to create a new keymap. I use a program called *Setkey*, but there are other programs available in the Public Domain. The keymap that you define will be the one that loads each of the individual programs when certain keys are pressed. Generally it's safe to define the F keys, but be careful that you don't define a key that's used by one of the programs to be loaded.

A temptation when defining a keymap is to define one which specifically loads the programs on your compilation, so that key F1, for instance, produces the command 'Powerpacker<return>' when pressed. Although this works, it's far better if you define the keys so that they execute a script file on the disk. For example, key F1 can be redefined so that it produces the following command when pressed: 'Execute 1<return>'. You would then create a text file (saved under the name '1') on the disk that contains the necessary *Powerpacker* loading commands.

There are two advantages to this: firstly the same keymap can be used for unlimited numbers of compilations – simply change the contents of file 1 – and secondly it's far easier to alter a text file than it is to alter a keymap.

When you're happy with your keymap, save it with a unique name. Avoid using the names of existing keymaps; this can cause great confusion later. The keymap should be placed in the Devs/Keymaps directory of your compilation disk.

To activate your keymap, all you need to do is type the command 'Setmap mymap', replacing the name of your redefined keymap where I've written 'mymap'.

WHAT USE SCANNERS?



I've just read your very interesting review of the Datascan Pro 3.01 in the January issue. I know nothing about scanners except that they scan pictures. Therefore I'd like to know if it's possible to load a Datascanned image into *Deluxe Paint 4* so that I can colour them in and print them?
S. May, Southend, Essex

Yes, you can load scanned images into your favourite art package. If you save a scan as grey scale, then it will be stored as an IFF screen in one of the standard screen sizes. If you subsequently decide to recolour it, you can simply substitute your chosen colours for the 16 shades of grey on the screen.

If you save a scan as a monochrome (black and white) bitmap, it's likely to be considerably larger than a standard Amiga screen (especially if you took the scan at one of the higher resolutions of 300-400 dots per inch). These scans can still be loaded into *DPaint*, but you may find that you run out of memory, especially if you change the screen format to one with lots of colours (16 or 32).

A1200 INCOMPATIBILITY?



I was looking through the DIY feature in your September issue and I was wondering if I could use the pause switch as a slow motion device on my A1200?

I'm hoping that I could use it to make the processor speed the same as the A500's, thereby making it compatible with games that don't currently work.
Ian Macdonald, Eastfield, Cumbernauld

I'm afraid that slowing the processor down in this way is not enough to make the two machines compatible. In any case, the DIY pause switch that you're referring to plugs into the expansion slot at the side of the A500. The 1200 doesn't have such a slot so the switch would be useless to you.

There is one simple way that you can make the machine compatible with a lot of software; if you hold down both mouse buttons when you turn your computer on, a screen of options will appear. Select 'Advanced Options' then select 'Cache Off'. Apparently this can make a big difference when trying to load previously incompatible software.

MUSIC X INCOMPATIBILITY



I bought *Music X* when I owned a 1.3 Amiga and it always worked perfectly, but now that I've got an A500+ it doesn't seem to work. Is there any way that I can get it to work, or must I wait for the new version?
Paul Pollett, Sheffield

There is a fairly simple solution to your problem, and it comes to you from Craig and Mark at Gordon Harwood Computers. Using a copy of your main program disk, load it until the Workbench screen appears. Open the Music X window and click once on the Music X icon, then go to the Workbench menu at the top of the screen and select Info. This will call up the information requester. Click on the ADD button at the right of the tool types box. This will place a cursor in the box ready for you to type, so enter BUFFER=200K then press return. Now all that remains is to click SAVE and load the program as usual; it will now work on your 500+! Of course, you'll have to use this new program disk to boot from in future, but you don't have to go through all this messing about each time. From now on, just load the program in the normal way.

CANON PRINT MANAGER



Could you please tell me where I can get a print manager for my Canon BJ10ex? Is there one which is compatible with *Pagestream*? At the moment when I use *Pagestream 2.2* I can only use my printer at 360x180 dpi, rather than its maximum of 360x360.
Ian Beattie, East Molesey, Surrey

I'm not quite sure what you mean when you refer to a 'print manager'. There is a free printer driver available directly from Canon. Write to them at Canon House, Manor Road, Wallington, Surrey, SM6 0AJ. Tel: 081 773 3173. The driver should work with all versions of *Pagestream* to give you the maximum 360x360 dpi resolution.

For printing IFF screens (including 24-bit images and Imagine files) there is an excellent program called *Canon Studio*. It costs £15.00 and it's distributed in the UK by JAM, 75 Greatfields Drive, Uxbridge, Middlesex, UB8 3QN. Tel: 0895 274449. You can find a complete review of this great program in the December issue of CU.

UPGRADE OR BE DAMNED!



I want to know if I should get rid of my A500 and buy a better Amiga such as the 3000, or should I simply expand my existing machine? I'm using my Amiga for games, WP and other professional applications.
H. Zor, Rotterdam, Holland

To answer your question I really need to know why you're considering changing your current set-up. If you simply need to add a bit of memory or an extra drive, then of course you should stick with your current kit. However, if it looks as if you're going to constantly expand your set-up, adding hard drives, megabytes of memory, accelerators and so on, then it's probably safer to start off with a better machine in the first place.

Considering the recent launch of the 68030 A4000 at under a thousand pounds, it certainly looks like a very tempting proposition. The great advantage to such a machine (apart from the enhanced graphics) is that it allows you to add future expansions such as hard drives internally, and for a cheaper price than their A500 external counterparts.

Additionally, there are many expansions available for 'big box' machines such as the A3000 and 4000 that are simply not available on the A500.

ROUTE PLANNER



I need a good powerful route planner and I've heard of *GB Route*, but that's too expensive for me. I'm looking for a PD program (which I realise is unlikely), or a program for about £20 to £30.

I live in Rugby but none of my friends' route planners (they own PCs) cover this town so I need something I can add things to.

M. Al Modaris, Rugby

Sorry, but it's *GB Route* or nothing! If you'd purchased the June 1992 edition of CU Amiga, you would have received it for free. However, as you obviously didn't get that issue, you'll just have to buy *GB Route Plus*. I agree that at £49.95 it sounds expensive, but it's at least half the price of comparable products on other computers, AND it knows where Rugby is!

You can buy *GB Route Plus* from Complex Computers, 2 The Arcade, Waterfoot, Rossendale, Lancashire, BB4 9AF. Tel: 0706 224531. Of course, you could always use a map and a bit of string to work out your route!

AUTOMATIC ANIMS



I own *Deluxe Paint III* and I want to make my own demo disks which automatically play an animation when the disk boots up. Can I use *DPaint* to help or will I have to learn Basic?

Darren Whitehead, Lancs

No you don't have to learn Basic (not that that would help anyway!). Obviously you must use *DPaint* to create and save the animations in the first place, but once you've done that you'll probably find it easier to use a dedicated animation player such as *PPAnim* or *RTAP* (*Real-time Animation Player*), both of which are available in the public domain.

***RTAP* lets you specify the replay rate of your animations and can even play them straight off disk. You'll find it on disk number 517 available from PD Soft, 1 Bryant Avenue, Southend-on-Sea, Essex, SS1 2YD. Tel: 0702 466933.**

***PPAnim* is particularly useful because you can use *Powerpacker* to compress your animations (to get more of them onto a disk) then *PPAnim* will replay these compressed files.**

If you buy the full commercial version of the program, you'll also receive *PPAnim*, *PPMore* and *PPType* (for replaying compressed text files) and *PPShow* (for displaying compressed screens). You'll also find that the program compresses files far more efficiently than the PD version.

You can buy your copy for £14.95 from Database Direct, Freepost, Ellesmere Port, South Wirral, L65 3ES. Tel: 051 357 2961.

FLASHY CAPS LOCK



I've read several letters in CU Amiga from people whose Caps Lock light keeps flashing. I have the same problem, so I took my computer back to the shop I bought it from as it was still under warranty. They checked it and said that since it only occurs when it is switched off and on again in less than 10 seconds there's nothing wrong with it. I doubt this because from the letters I've read, I gather my machine has a faulty keyboard processor chip. The light flashes continuously at about 38 times a minute. Is my A500+ faulty or not?

Jamie Peters, Coalville, Leicestershire

I suspect that your computer is fine. Because of the construction of the Amiga's RAM chips, the information in them is not completely destroyed the instant you turn the power off. If you turn the power back on within a short time, the residual information in the chips is usually incomplete. When the computer tries to act upon that information, it gets 'confused' by the damaged data and crashes, flashing the Caps Lock light as it goes.

To avoid this turn the computer off for longer than 10 seconds. This will also destroy any viruses that may be in its memory, so there's a double benefit to following this simple procedure.

WHICH RAM EXPANSION?



I'd like to start by saying that I know absolutely nothing about computers. However, my son has an Amiga 500 and all the games he now wants seem to require 1Mb of RAM. I'm told that the A500 only comes with half a megabyte so he wants to upgrade to 1Mb.

Looking through the pages of your magazine, there are so many different products to achieve this, but I find it all very confusing.

Can you advise on which product is the simplest to install and cheapest to buy?

Arthur Rice, Drumaness, Co Down

The various half meg expansion boards are all equally easy to install as they plug into the same slot in the same way. Although there can be slight quality differences between the construction and raw components of the different units, these don't make a big enough difference to influence your buying decision. Therefore, the only real difference between the units is whether or not they include a battery-backed clock.

Such a clock can be useful in identifying the creation time and date of files if the computer is being used for anything other than games, but otherwise it's not worth considering. A clock will add £5 to £10 to the price of your AM expansion.

I have no particular recommendations – just look for the cheapest price you can find. I've seen units for under £25 without a clock.

COLOUR PRINTER



My writing isn't brilliant so I am looking for a printer for school work. Can you advise me which printer would be most suitable? I also want to be able to use it for colour work.

Graham Dawson, Stirling

There are a couple of 24-pin colour printers that are currently proving very popular, namely the Star LC-200 colour and the Citizen Swift-24. Both cost in the region of £300. If your budget won't quite stretch to these, Star have just released a new nine-pin printer for about £150 called the LC-100.

If you have a bit more money to spend, the Hewlett Packard Deskjet 500C uses bubble jet technology and although it has an RRP of approximately £700, the results are considerably better than those of the dot matrix printers mentioned above.

FRETFUL FONTS



I'm keen to learn more about desktop publishing. I'll be looking to produce posters and the occasional magazine/fanzine. However, I'm unsure about the range of fonts available. What's the difference between bitmap and structured fonts? Which are better and how do I obtain these fonts?

Michael Ramsay, Forfar

As you've correctly identified, there are two basic types of fonts: bitmapped and structured. The characters of a bitmapped font are defined pixel by pixel. For example, a capital letter 'T' may be defined as four pixels in a vertical line with a row of three horizontal pixels on top of them. You may think of this definition as a 'map' to the shape of the character.

However, this map only refers to the letter at a particular size; treble the size of the font and you either need exponentially more pixels to describe the same character accurately, or you simply use the available number of pixels to approximate the character's shape, thus lowering its quality.

There are two types of bitmapped fonts available: ordinary monochrome ones, and colour fonts which are usually more elaborate, and in multi-colour. The monochrome fonts are often to be found on PD disks, and can be used in many word processing, graphics and DTP packages. Colour fonts, on the other hand, are rarely (if ever) found in the public domain, and even commercial ones are few and far between. They require special software considerations to use them, and virtually no packages support them.

A structured font is represented in the computer in an entirely different way. Instead of using pixel maps, characters are represented by scaleless mathematical definitions. Therefore, our letter 'T' is now described as a series of lines, angles and trajectories which define every part of the letter relative to every other part. This method is very memory intensive when dealing with small font sizes, but the larger the font, the more economical structured typefaces become as they still only require the same amount of memory regardless of their size. Furthermore, because they're defined mathematically, they don't suffer any quality problems when their scale is changed.

There are a number of different types of structured fonts available. Workbench and packages such as *DPaint* and *Wordworth* use Intellifonts, whilst *Professional Page* uses Amiga Agfa Compugraphic fonts. Its biggest rival, *Pagestream*, uses Adobe typefaces.

Thanks to the font manager supplied free with *Pro Page*, Adobe typefaces can be converted into Compugraphic ones. Similarly, the *Fountain* program supplied with Workbench 2 and above can be used to convert Amiga and standard Compugraphics into Intellifonts. Unfortunately, only commercial software can convert either of the latter back into Adobe typefaces. There are literally hundreds available from public domain libraries.

ANY PROBLEMS?

If you've got a problem with your Amiga and want a sensible, no-nonsense answer, write to Mat Broomfield, Q&A, CU Amiga, Priory Court, 30-32 Farringdon Lane, London, EC1R 3AU. Please don't include a stamped addressed envelope as we keep Mat far too busy to make individual replies.

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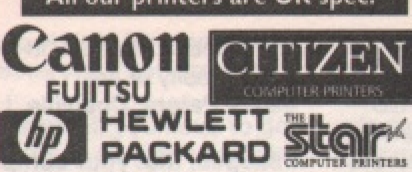
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BACKCHAT

Normally a calm and placid man, some strange demon seems to take over our deputy editor when he answers our readers' letters. So, here's Jonny...

NAME CHANGE

When I was looking through the March '93 issue of your mag I was surprised to see my name (or most of it) on one of the screenshots in the *Bard's Tale Construction Set* review. Even though I wasn't interested in the game, I always read a review just to know what your opinion of it is.

In the review there are two pictures of the main screen and down at the bottom where the character names are, characters four and five have the names 'Paul' and 'Eltan' respectively – most of my name! Now this feels too much of a coincidence as the name Eltan isn't common, just check a 'phone directory. I've never seen anyone else's name with an 'a' instead of an 'o'.

My Dad, who used to live in Malta, had the surname of Tanti. When he moved to England he changed his name to a more English-sounding surname. He added the first letters of his surname before placing an 'e' on the front. He then took part of his mother's name and made Eltan double-barrelled. He said that he has checked to see if there are any other Eltans about and there weren't any. It seems really weird for the reviewer, Tony Gill, to have two characters from the *Bard's Tale* with my name!

Right, with that out of the way I was wondering if you know whether there will be an Action Replay cartridge for the A1200? I want a better computer, but I don't want to lose this trusty piece of hardware. Even though the current cartridge won't work on a 32-bit machine I feel it was stupid of Commodore to abandon the expansion port. Look at all that space on the left-hand side of the A1200. You could easily have placed the expansion port where the PCMCIA slot is and then have the PCMCIA slot where the disk drive is – only on the opposite side.

In my opinion Commodore have stepped right in it since last year. It made me sick to read about a spokesman saying that the A500 was yesterday's machine when the A600 appeared. Then the A1200 appeared, which seemed to be the computer that I and many others were waiting for. But I had a lot of sympathy for all those people who had just bought an A600. People rushed out to buy the A1200 but found that it had a lot of essential components missing, like the aforementioned expansion slot, a DSP, hard drive, etc. It's embarrassing to realise that the Atari Falcon is in reality a lot better, when we've all been slagging it off (Vic Lennard made me see this in your Points of View section, also in the March issue).

Commodore are going to rectify the DSP problem, but yet again this stabs even A1200 owners in the back. It seems that Commodore just can't wait to release new technology on the public before they get hold of new extras. I don't want a PC or an Atari or a console. I want an Amiga with the potential of a good PC so you know you have the best, but Commodore have made loads of mistakes, which cause people to defect to the other side. Maybe Commodore should ask the public what they want, giving a set of guidelines with a request to each mag for a questionnaire that readers could send in. Are Commodore bothered about the public or are they just going to 'take the money and run'?

Paul Eltan-Shaw, Crowborough, East Sussex

I've spoken to Tony Gill about the names in the *Bard's Tale* and he says that those are the ones supplied with the game. If I were you I'd put it down to coincidence. After all, I play a lot of adventure games and if there is anyone out there called Thragg from Slandaar, I'd just like to assure him that I made the name up! As for the Action Replay cartridge, Datel say that the A1200 version is currently at the development stage and will be available soon.

INSIDE INFORMATION

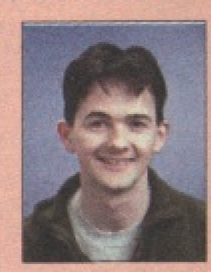
It seems that top games publishers, Virgin, are rapidly expanding on all fronts. Not only have they taken on loads of new coders and design staff, they've also poached ace PR person Danielle Woodyatt from US Gold. They are currently working on masses of new games, most of which are top secret. As soon as they let their guard drop and spill the beans we'll get you more details on the upcoming products.

On a slightly different note, they've just done a deal with top record producers, Polygram, to put the music from the Sega version of *Mega-Lo-Mania* onto a compilation album. Apparently, the record will contain various clues to the game and the first person who manages to spot them will win a holiday to sunnier climes.

TEAM TALK

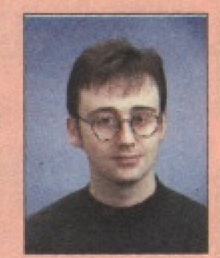
There have been a few changes since last month. So to keep you up to date with what's happening at CU Towers, here's the latest libel column.

DAN 'LARD-ARSE' SLINGSBY



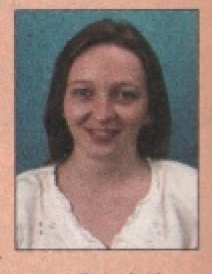
Now that Dan's got stuck into his physical fitness kick, he's on something of a moral crusade, extolling the virtues of cold baths (yet again), 40 press-ups before breakfast and other acts of self-abuse. We wouldn't mind, but Dan's the culprit who got smoking banned at CU Towers, so we're all a bit worried that he'll persuade 'The Management' into forcing us to do aerobics before we start work in the morning. God forbid, and we all look so crap in leotards as well. Other than huffing and puffing his way to fitness (and still managing to be out of breath when he's reached the top of the stairs!), Dan's new Amiga hints'n'tips book should be in the shops as you read these very words. Anyone wanting a copy of this fine literary tome and outstanding games guide, ring BSB on 0923 894355. (Plug, plug).

JON 'RELIEVED' SLOAN



Jon's been given a new lease of life with the addition to the team of a Production Editor. No longer is he to be seen slaving over hot page proofs late at night – these days he's more likely to be found at some industry bash getting legless in the name of work! As his wedding rapidly approaches (it's on the 24th of May) he has become more and more domesticated – Which is certainly a step in the right direction as he's not even house trained yet. There's nothing he likes more now than to stand around in the kitchen at work carefully cleaning the worktops and moaning about the other sods who never bother to. By the time you're reading this he is probably on his honeymoon sitting on a Caribbean beach drinking cocktails, lucky sod. We'd just like to say that we hope he gets sunstroke.

HEATHER 'RULER' TURLEY



Our new Production Editor has certainly taken to her job with relish. Not only is she ruthless with a ruler when recalcitrant writers don't get their copy in on time, but we think that she's taken her job description a little too literally. She has decided to produce another creation – a little baby, oooh! Despite the fact that she's preggers she hasn't been seen doing any of the usual pregnant woman-type things, like going down to Mothercare in her lunch hour and getting all misty-eyed. It's been suggested that this pregnancy thing is all a ruse to elicit sympathy from the freelance team so that they send their stuff in on time. Knowing Heather as we do, we reckon that the bulge that's starting to form under her jumper is more likely to be a concealed weapon than a new sproglet.

The points you make are valid. I know how those customers feel, as I bought an A600 merely weeks before we were told about the A1200. Now, I'm locked in to a machine that is rapidly becoming out of date. But that's the price we pay for the march of technology. Of course, Commodore could have handled the transition better, as people normally have machines for some time before upgrades are released. Not so in the Amiga market, where machines now seem to have a lifespan measured in months. Maybe Commodore are too technically excellent for their own good. Perhaps you should have taken Vic Lennard's comments with a pinch of salt as it seems he has inflamed a few readers...

IS VIC (ALL) THERE?

After reading Vic Lennard's opinions on the relative merits of the A1200 and the Falcon, I simply couldn't contain my frustration. Although he made some valid points regarding the missing DSP Chip and SCSI ports in the A1200, the rest of his argument was simply misleading. The A1200 has a clock speed of just over 14MHz, the Falcon is hardly leaving it for dead at 16.16MHz. He also casually forgot to mention that the Falcon comes with only 1Mb of RAM, isn't really multi-tasking, isn't as expandable as the A1200 and, most importantly, isn't as cheap. In an ideal world the A1200 could have been a touch faster and have had a DSP Chip, but cost simply wouldn't have allowed that. High density drives will be obsolete when CD takes over as the new medium. I found Vic's comments destructive and rather childish to be honest – a case of 'my computer (that isn't even out yet) is better than yours' syndrome. If you must let editors from inferior computer magazines have their say on the A1200 vs Falcon debate, please ensure that they tell the whole truth regarding specifications, not simply slag a company and its customers off purely out of prejudice. Commodore have made mistakes, but they will be around in five to 10 years. Mr Lennard and his invisible Falcon probably won't.
Pat McGrath, Luton

This is just one example of the many letters we have received on this subject since we printed Vic's comments. For the most succinct riposte see the Letter of the Month from an anonymous Amiga developer. Not all our readers, however, disagreed with the sentiments expressed by Vic. Take this one for example...

MUSIC COCK-UP

Having been a professional musician and eager Amiga user for about six years now, I cannot help feeling frustrated about how the Amiga is ignored and ridiculed in the serious music society.

OK, so the Amiga Modules format has become a standard even on PCs and Atari computers, and a lot of superb music has emerged from the thousands of underground musicians who use the Amiga's four channels of 8-bit digital sound to create some really stunning music (considering the hardware limitations).

But in the 'real world' of the serious music industry, where musicians work with CD-quality sound, MIDI and synth equipment, composing film scores, jingles and other professional quality sound and music, the Amiga is as good as dead. If you tell someone in the industry that you are using an Amiga for music production, chances are they will literally laugh at you! In my opinion, there is one company who is responsible for this: Commodore. They are the sole reason for the disastrous status the Amiga has in the music industry.

I recently received a new issue of *Roland Inside*, a magazine exclusively aimed at Roland users. On the letters page, a reader had written in and asked if the Amiga was OK for music and MIDI use. The magazine's editor replied that the Amiga was just a games machine and couldn't be used to produce music. Upon reading this, I nearly choked! Not only because it was written in what I had considered to be a well-informed magazine, but because this is obviously the general impression throughout the industry. Why?!!

It was a major mistake of Commodore not to include a MIDI port on the very first Amiga model, the A1000. This interface only cost a few measly pounds to install! When Atari released the ST it came equipped with a built-in MIDI interface and was immediately seen as a 'computer with musical abilities'. Sadly the Amiga wasn't.

One should think that Commodore would have learnt from this cock-up and at least installed a MIDI port on the A3000. Sadly, they didn't bother installing a MIDI port this time around either. Haven't Commodore HEARD of the MIDI standard? It makes you wonder, doesn't it?!

And now we have two more new models from Commodore, the A1200 and A4000, with some great new graphics features and a faster processor to boot. But have commodore included a MIDI interface? Hahahaha. Fat chance! But surely they *must* have included a Digital Signals Processor (DSP). Don't make me laugh. This device would have enabled the new Amigas to carry out professional level sampling, but Commodore must have had their collective head in the sand yet again.

The way I see it, Commodore have now chosen to ignore the music field completely and pretend it doesn't exist. If you aren't into digitising a million colours or playing footy sims, then Commodore don't want to know.

Well I for one have had enough. I'm going to buy a Falcon or maybe even an IBM clone. Thanks for everything Commodore, but I'm not going to hang around waiting for you to get your act together.
Bjorn A. Lynne, Oslo, Norway

THE FAR SIDE By GARY LARSON



Knowing how it chould change the lives of canines everywhere, the dog scientists struggled diligently to understand the Doorknob Principle.

I LIKE MAT

I am not a woman normally given to hyperbole; in fact, I am more likely to criticise the excessive use of superlatives (especially in most computer magazines). However, I cannot find adjectives superlative enough to express my praise of your Q&A writer, Mat Broomfield. He is wonderful, marvellous, excellent, splendid, magic, superb... need I go on?

And before you ask – no, he's not paying me to write this!

Seriously though, I really would like to express my admiration and gratitude for the service he offers. We bought an Amiga 1200 for our children at Christmas, and although I have some experience with a PC (on which this letter was written), I felt a total ignoramus when it came to the Amiga and, presumably because the A1200 was so new, found it extremely difficult to get the information needed from the books.

So, I wrote to Mat thinking that I might, if I was lucky, see an answer to the questions in three or four months' time. But he, realising that I needed answers more quickly than that, took the time out to ring me after work. This really is service over and beyond anything I'd normally expect, but even that wasn't the end of it. Mat gave me his home phone number and when I had another urgent problem, he solved that for me in around five minutes.

Compared with the trouble I've had trying to get information from the laughably and most inappropriately named Commodore helpline (but that's another story), the service freely and cheerfully offered by Mat is incredible (to use yet another superlative). I could start rabbiting on about the »

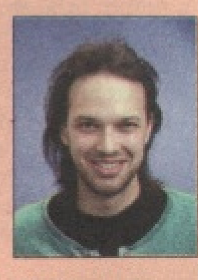
TONY 'MED MANIAC' HORGAN

It seems hard to believe that we used to moan about the constant boom-chaka-chaka tunes spewing out all day from Tone's Amiga – these days we've got to put up with a barrage of obscure German headbanging techno from dawn till dusk. We have come to the conclusion that he's actually hiding a pair of mating gerbils in that computer of his, but he is adamant that it's music. He's even gone as far as sticking some self-composed tunes on his Amiga, then using its multi-tasking to hide *MED* under another screen. He's been trying to claim that it's a brand new soundtrack for a new game – but fortunately we're all a little too intelligent to fall for that one. The only respite that we get is the sacred lunch hour, when he's too busy tucking into his daily kebab and chips to even think about making any noise.



NICK 'INCOMPREHENSIBLE' VEITCH

Unable to shake off the attention of the law, our Nick's been in trouble again. After innocently making a call from a public box on London's Embankment he stepped outside to find himself surrounded by a couple of menacing rozzers. They stopped and searched him, saying that they were looking for a phone box vandal and he fitted the description. Of course, Nick is innocent but was very worried that there might be a dangerous criminal, who looks like him, roaming London. When he asked the apologetic cops what description they had, they said that the perpetrator is tall and wears a leather jacket. Unfortunately for Nick (and about 200,000 other blokes in London), he fitted the description perfectly. The police will be very busy if they have to search everyone who matches that detailed photfit!



LETTER OF THE MONTH

VIC'S A DI [Snip – Ed]

I am writing to complain about Vic Lennard's piece which appeared in the March issue of CU Amiga. When I spend money on an Amiga magazine, I do not expect to be patronised by someone who knows even less of the non-Amiga platform he is advocating than I do.

Mr Lennard begins by saying that the Falcon's specs are 'frightening' with respect to the A1200, which has an 'appalling' spec sheet. He then goes on to single out those features of the Falcon that are not present in the A1200. Firstly, there is nothing in the Falcon's specs that 'scare' me. The various features in Atari's machine that are not present in the A1200 are implemented in a less than perfect fashion. I too could ask, where is the copper, where is the dual playfield grafix support, where is the HAM-8, where are the hardware sprites, where is the industry standard PCMCIA slot, etc.?

Mr Lennard claims that the industry has adopted the 68030 as the bare minimum for a computer of any real power. Which industry does he have in mind? The differences between an '030 and an '020 narrow down significantly if you put the '030 on a 16-bit bus (like the Falcon does), or share the CPU bus with the graphics bus (like the Falcon) or do not support the burst mode (like the Falcon). Atari have crippled the Falcon's performance by using these shortcuts.

When Atari PR says that the Falcon is a 32-bit computer, what they actually mean is that it is a 16-bit design with a 32-bit CPU. This is the kind of deliberate cost-cutting exercise that also cripples Apple's 68030-based Macs. The A1200 has a 32-bit CPU and a full 32-bit architecture, by comparison.

Next, we are patronisingly informed about the DSP. Motorola's 56000 is an integer only device with no bus-mastering capability. Commodore's publicly announced choice, the AT&T 3210, is a full floating point unit with both bus mastering and its own pre-emptive multi-tasking, multi-processing operating system. Result, one or more 3210s can be running multiple tasks at the same time as the main CPU and have access to the same memory that the CPU does.

In the Falcon implementation, the CPU has to stop and feed data to the DSP, which does not have its own operating system, let alone a pre-emptive one. Commodore are putting DSP support into the system software first, which is where it belongs.

Similarly for the MIDI ports, Commodore now have the CAMD.library for the Amiga, which provides a clean high-level system-friendly interface to all applications which require MIDI timing. This will allow multiple MIDI applications to multi-task and share data at the same time. Even the Mac (which has better MIDI software than any Atari machine) cannot do that in real time. Contrast this with Atari's 'take over the machine' approach to MIDI.

We are told that the Falcon can emulate the PC and Mac platforms more easily than the A1200. Maybe Mr Lennard has not heard of EMPLANT. It currently emulates a Mac in colour (an A1200 PCMCIA version is in the works) and is capable of multiple simultaneous emulations, one of which is to be a Falcon emulation module. You will be able to emulate a Mac, a 486 PC and a Falcon with the Amiga at the same time! In a related act of misconception, Mr Lennard says that the Falcon has a dedicated internal bus expansion slot designed to accept a different processor. What he doesn't seem to know is that so does the A1200.

Furthermore, the A1200 local bus is a full 32-bit slot (the Falcon has a 24-bit design), and also allows for a pass-through connector at the back. You can also get at the slot without opening the machine up and voiding your warranty (the Falcon's is internal).

Also oddly missing from his article is the fact that the A1200 can deinterlace screens in software (unlike the Falcon). The video support is far superior in the A1200 (256 24-bit colour registers, each with its own genlock bit).

You can simultaneously and independently program the horizontal and vertical overscans in the A1200 – the Falcon lets you do only one or the other at a time. There's more – the Falcon blitter lacks the three-source input of the Amiga blitter (it can only take two inputs at a time). Nor does it perform blits in parallel with the CPU over dedicated Amiga channels.

Finally, may I suggest that in the best spirit of reciprocity, the editor of CU Amiga be allowed a guest page in Atari ST Review to highlight the above-mentioned defects in the Falcon's design? With people like Mr Lennard in charge of editing Atari magazines, we need to make a sincere effort to speak the truth for a change.

An Amiga developer, London

We stirred up a right hornet's nest when we ran Vic's piece, didn't we?!. Obviously we agree that the A1200 is a superior machine in most respects and is much more likely to survive to breed a new generation. In fact, we've put together a detailed comparison of the two machines at the front of the magazine this month and we hope that it will finally dispel any remaining doubts about the relative features of the two beasts. It would be not only pointless, but far too lengthy to cover the same ground here.

What I think you are missing, though, is the whole reason that Points of View exists in the first place. It is exactly what its title suggests it to be – opinion. All that we ask of the writers who contribute to the page is that they are reasonably lucid and well-informed when presenting their verdict on a particular issue. Beyond that, it is entirely up to the writer to present the argument in a way that he or she wishes to.

If a fact is glossed over to justify an argument, then you must take that with a pinch of salt. After all, that's what politicians do all the time! You were given sufficient warning about Vic's occupation, and we felt that we ought to give the other side, as it were, a chance to present its argument. However, I have to say that I'm glad that you didn't agree with it and hope that you find our feature balances out Vic's presentation of the debate.

standard of service generally these days, but that would just give away my age so I won't bother.

I'm impressed by your magazine generally and will certainly continue to buy it and recommend it to everyone I meet. The world of computers is mysterious to most of us who where born before 1960 (oh dear, I nearly gave away my age again!) and anyone who can demystify it deserves real praise.

Gill Callen, Worcester

I'm glad that Mat took the trouble to help you out – he often replies to readers on a personal basis and even offers to take enquiries if he's not too busy. However, it seems that not everyone is as happy with Mat's service as Gill.

AND THEN AGAIN...

I would like to explain to Mat Broomfield (and his inflated head) and Dylan Jones (Ask the Experts, March '93 issue), who has been rather misled, what 'mega' means. Contrary to what Mat (and his punctured head) seems to think, mega means million, not thousand, which as Mat (and his deflated head) correctly pointed out, actually means 1024. Therefore, a megabyte is actually 1024 kilobytes, or 1,048,576 bytes. Don't take it personally, just sort your lives out, all right!

Adam Cadman, Portsmouth

WHO'S RACIST?

Having just sat down to read, on St David's Day, the latest edition of what I once considered the best Amiga mag, I was cheesed off to read the following: '... Richard Griffiths from Wales (where else?).' Why not write 'I bet he's black, Jewish, disabled, etc.' Perhaps we can look forward to suitable permutations in future editions! I thought that the stock stereotype for thick was the Irish.

In general such comments have been shrugged off by the Welsh nation thanks to our acknowledged sense of humour and recognition of the English inability to accept an alternative point of view even if it is by a majority – witness the Maastricht debate and our (?!) Government's resistance to adopt protection for the lower paid as embraced by the other EC countries.

I buy your magazine for relaxation and information, not to be motivated to respond to some smug, faceless prat. Therefore publish an apology à la BBC's recent *Top Gear* guff and cut the racist crap.

Ian Williams, Mid-Glamorgan

I'm sure that Tony did not mean to suggest that all Welsh people are thick. In fact, reading his comment again I have no idea how you managed to get that interpretation from it. I think

INSIDE INFORMATION

The World Cup has come around again – the Sensible Soccer World Cup. Journos and industry types are going to descend on the Sensi boys' Cambridgeshire home to relive the glories and disappointments of the 1990 World Cup. Your favourite magazine is being represented by Jon (Argentina) and Tony H (Malta). You can tell who drew the short straw in the team selection, but don't worry about the apparent disparity in team abilities as the stats will be fixed so that everyone has a fighting chance. We'll let you know the full results soon (unless we get soundly thrashed!).

Send your letters to: BACKCHAT, CU AMIGA, EMAP IMAGES, PRIORY COURT, 30-32 FARRINGDON LANE, LONDON EC1R 3AU.

that Tony was, in fact, saying that the name Griffiths is Welsh in origin and that's where he'd expect a Griffiths to live.

Now, with that over, how dare you go around accusing people of being rhetoric when you fill your own letter with racist remarks! In case you weren't aware, making a sweeping generalisation about all English people not accepting another's point of view is itself a racist remark.

QUESTIONS, QUESTIONS...

I have a few queries about the March issue:
1) First, I would like to say that the *Flashback* demo was excellent. I recently bought an A1200 but found that I had to disable the CPU cache for the demo to run OK, but as I said it was fab.
2) *ReloKick* would be of great use to me, but when I ran it it came up with the following message: 'C:ASSIGN failed returncode 20.' Why?
3) *Superfrog* was quite good fun but either I'm slowing down or it ran just a little bit too fast on my lovely 1200 Turbo.
4) *KidPix* had a few rather amusing features, but I was horrified by the review. I cannot believe you gave it 90%. I've seen *DPaint 4.5* advertised for about £70 and *KidPix* is £300. I've used *DPaint II* for years and it's far better than *KidPix*. So, how much did Electronic Arts pay you for praising *KidPix* so highly?
Matthew Elvidge, Plymouth

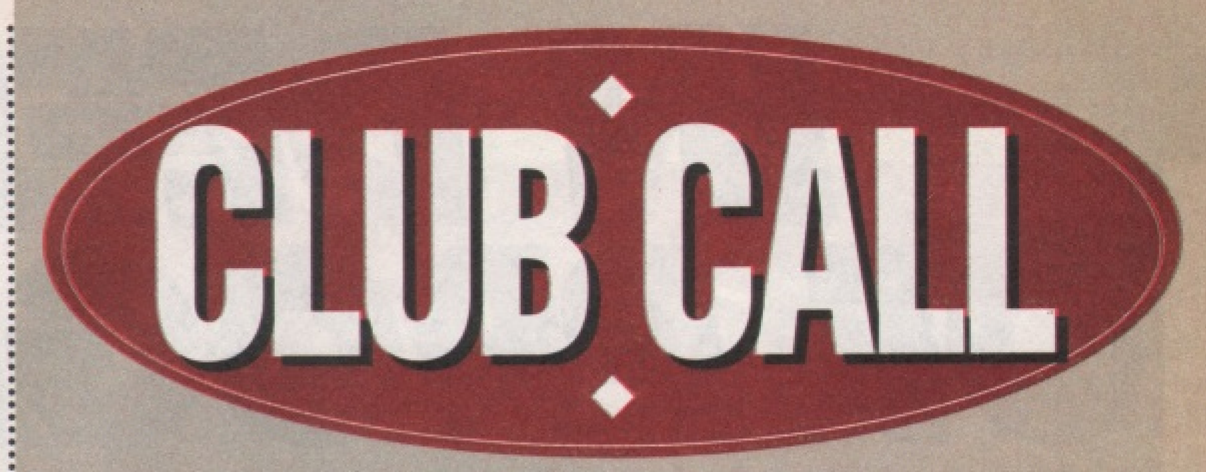
**The problems you noted are due to one or two gremlins in the works. *ReloKick* does work perfectly well despite that error message you are getting. To get around it follow this procedure:
1) After unpacking the program, do a soft reset (using the CONTROL and two AMIGA keys simultaneously) and insert the disk in your computer.
2) Some copyright messages will appear, after which you'll see the phrase 'Kicking in Now'.
3) When the screen flashes, remove the disk and do a soft reset. You'll now get the 1.3 Kickstart screen as promised. Sorry, this wasn't clear enough in our original instructions.**

The other point about *KidPix* is, again, error related. The actual price is £25.99, not £299 as we stated (a slight typographical error and my fault I'm afraid). So the score is definitely valid.

WHERE ARE ALL THE GAMES?

I've just bought an A1200, but I'm a bit worried that I might have bought a machine that's on the way out. Already such established names as Sierra and Infogrames have stopped producing games for the Amiga and I've heard that US Gold have dramatically cut back the number of Amiga games they intend to publish over the course of the next year. This is also true of other software houses, such as Ocean and Microprose, who seem to be devoting most of their time to PC or console games. Why are so many companies abandoning the Amiga?
Paul Eddy, Chester

Don't panic! As you can see from this month's First Impressions feature there are more games than ever being developed for the Amiga. Admittedly, it is worrying when companies such as US Gold stop publishing Amiga games. In the case of US Gold, you must understand that they are actually a glorified importer/distributor. As much of their product comes from the States, it's understandable that they should be cutting back – the Amiga isn't a popular games platform in the U.S. and is used for more specialist purposes such as video production. But as I said, the Amiga has a healthy future as a games machine.



Delving deeply into this month's mailbag, CU Amiga presents another rolicking round-up of Amiga clubs.

AMI-INFO CLUB

Homeside, Higher Warberry Road, Torquay, Devon TQ1 1SF.

This west of England-based club is currently looking to expand. The club only boasts 33 members at present but would welcome applications from interested readers. A year's membership costs £10 but Ami-Info has a lot to offer.

- Three newsletters per year, containing news, members' letters, questions and answers, reviews of Amiga products, a special beginners' section explaining the Workbench [*Sounds familiar – Ed.*], virus checkers, a classifieds section, etc.
- One disk accompanying each issue, packed with useful programs and info.
- Regular competitions with prizes of up to £50.
- An introductory disk when you first join.
- A small PD library will soon be available.
- Membership introduction incentives, i.e. prizes for those who bring in the most members over a given period.
- Discounts on selected games and productivity materials, e.g. *Formula One Grand Prix* £9.99, *Sensible Soccer* £6.99 (plus £2.50 P & P per game ordered).

That's a fair amount of stuff for a reasonable fee. If you're interested send an S.A.E. to Paul Caparn at the above address and he'll send you an application form. Alternatively, bung £2.50 in the envelope and he'll send you a sample newsletter so you can try before you buy.

WORLDWIDE PD/SHAREWARE

Postfach 3231, 4030 Ratingen 1, Germany.

Run by Dave White, an old Amiga hand, this Germany-based club has been up and running for about a year now and has already accumulated over 100 members. It's run specifically for British Forces abroad, but also welcomes applications from any UK ex-pats. The membership fee is DM60 per year or DM6 per month. Apart from the usual Amiga advice and help, it currently has over 2,500 PD disks in stock.

If you want to get in touch, drop Dave a line at the above address or call him on (Germany) 02102/499729 Monday – Sunday 24 hrs. He's also thinking of putting a disk-based magazine together and would appreciate any help that you can offer.

THE PERTH AND DISTRICT AMATEUR COMPUTER SOCIETY

14 Imrie Place, Hillyland, Perth PH1 2QN

This Amiga club covers a wide range of computers, not just the Amiga. At its monthly meeting talks are given on a plethora of subjects, including the relative merits of the CDTV, MIDI set-ups, programming and animation, etc. They also provide hardware demonstrations and give advice to members with problems. Also, members can make use of the clubs extensive PD library. Membership costs £6 per year and further details can be obtained from the address above (don't forget to include a S.A.E.).

AMIGA CHRISTCHURCH

PO Box 35107, Christchurch, New Zealand.

Thanks must go to Neville Humphries for sending us a copy of the Amiga Christchurch newsletter. It's a well-produced A4 magazine which is actually put together using and A2500 with 7Mb RAM, a 52Mb hard drive and a flicker free video card. It all looks highly professional and reads quite well too. Amongst its 18 pages, you'll find a report on their recently organised Amiga Expo which attracted more than 400 people and unveiled the A1200 and A4000 to the waiting masses.

There's also all the usual features you might expect in a publication of this nature – for instance, there's a lively letters column, a Notice Board where all sorts of kit can be exchanged or bought, a review of the A1200, a tutorial in assembly programming, some game hints and cheats and lots and lots of ads.

Oh, and they've even got a review of CU Amiga in there, too, of which they were most complimentary – thanks very much! Amiga Christchurch is a real grass roots organisation and it's nice to see that Commodore actively support them by lending them bits of kit – it's a pity that Commodore UK don't take a leaf out of their book! If you live in New Zealand, I'd recommend you get in touch. Annual membership is $30 and there are regular monthly meetings.

TOTAL IRRELEVANCE

6 Glevum Road, Stratton St. Margaret, Swindon, Wiltshire, SN3 4AF.

In the March issue of CU Amiga, we gave details of a new club that was starting up especially for *OctaMED* users. Well, we're pleased to say that the club is now up and running. Total Irrelevance (as that's what the club's called!) aims to tackle all members' problems and provide information on all new *OctaMED*-related products and developments. A disk magazine is produced on a bi-monthly basis and includes competitions, demos, modules, samples, a small PD section, news, reviews and more! As a special offer to CU readers, the club's organiser will even send you the first magazine free of charge (provided you send an SAE and a blank disk). Members are invited to submit their own modules, samples and demos etc., for inclusion in the club's PD library. Let's make this worthwhile club a great success – drop them a line today.

IN DEFENCE OF PROGRESS

As yet another Amiga appears on the shelves, Nick Veitch wonders where it will all end.

There has been a lot of talk recently about Commodore and their marketing strategy, or lack of it, even in these hallowed pages. As we see yet another new machine begin to waddle off the production lines in Scotland, many people are starting to ask serious questions about the pace of technology.

Nobody complains when the car industry releases a new model, or the old ones are redesigned for the Autumn shows. Nobody complains when *The Clothes Show* tells everyone that what they are wearing is 10 years out of date and urges people to buy some strangely coloured piece of fabric which looks good on Naomi Campbell's body, but nobody else's.

Even closer to home, nobody complains when the hi-fi manufacturers come out with a new type of CD player virtually every month. You must buy this one – it's got 32-bit oversampling, auto record shuffling, multistack parking, not to mention full interstellar overboggle.

Why then do people complain about Commodore when they release a new machine? Well, it's understandable in a way. If you have just bought a computer, believing it to be state of the art, and a new model is released the next day, it's only natural to feel cheated. Would you feel the same way if a new CD player is launched the day after you make a purchase? Probably not, but then again it probably doesn't make much difference – who needs optical turbo-rewind anyway?

WHAT'S THE DIFFERENCE?

You buy a CD player to play compact disks. Likewise, you buy a computer to run software. So why feel cheated when a new model appears? You can still run exactly the same software as you could when you first bought the machine. It still has all the specifications it had when you bought it. Or does it? Has it been somehow robbed of some important feature, the shimmering gleam of true cutting edge technology?

There is perhaps slightly more cause for concern when your computer is superseded by a new model. There is always the worry that the software and peripherals of the future will no longer be obliged to be compatible to yesterday's model. To a certain extent that is true, but looking at the Amiga, it is perhaps less true than with other machines. The Amiga 500 and 500+ have been out of production for almost a year now. Since then there have been no new Amigas launched which have a DMA side expansion port. Has this stopped development of peripherals for this port?

Maybe there aren't a great deal of companies actively developing for the 500's expansion slot, but it is still very much supported. Take a look back through the pages of this magazine and count how many hard drives and RAM expansions for the A500 you can find. It is not an inconsiderable number.

A computer doesn't die simply because it is no longer manufactured, especially when it is still more or less compatible with its successors. Even if the entire Amiga range were to be discontinued, the third party dealers would still be producing new peripherals for years to come.



Nick Veitch would like to point out to the Metropolitan Police that he is not responsible for the recent spate of phone box robberies and, by the way, have you found his bike yet?

THERE'LL BE TEARS

Without a doubt the Amiga community has now become a two-tier society – those with AGA and those without. It is a gap which is impossible to breach. There is no way that an A500, or A600 for that matter, can be upgraded to the AGA chipset. This is really the first division to appear in the Amiga community. The differences in Kickstart and Workbench revisions do not really count as a major obstacle to Amiga harmony – upgrades were made available by Commodore themselves.

Even the AGA chipset will not really create an Amiga apartheid. Software may be written to take advantage of the AGA chipset if it is present, but may still work on older machines, and probably will if developers have any sense. Obviously software which is written particularly to take advantage of AGA architecture may be somewhat redundant though – there is little to be gained by buying *DPaint IV AGA* for your A600...

There is no point in trying to hold back the tide of technology. Commodore would be guilty of far worse crimes if they decided not to release new machines. As long as it is done responsibly, of course. there is no denying that the release and subsequent discontinuation of the A500+ was a bit of a black eye for Commodore. It was not meant to happen, but then what real harm was done? There is no great difference between the A600 and A500+ – the 600 has an IDE interface, the 500+ has a DMA port. Big deal.

A SPORTING CHANCE?

There is a sport that has steadily grown in popularity since about 1982 – a sport which has developed into a tradition in some circles. The name of the game is whingeing at Commodore. Basically they can do no right. If they don't release new machines they are lagging behind, not showing the proper commitment etc. When they do they are accused of selling the public down the river.

Whatever the relative merits of Commodore's strategy and however high or low in the rankings of the 'all-round good guys' top 100 they are, the Amiga is a very special machine. Not only has it held the imagination of the computer-buying public for seven years, it has developed along with its owners. No other home computer has gone through as many variations – not just pointless reconfigurations, but actual developments.

The march of progress goes on. New machines are, technology-wise, old hat often before they are even launched. Anyone who buys a new machine and expects it to be state of the art in two years' time is either intellectually disenfranchised or just a major league pessimist. You know the risks, you know what you are buying – a brief snatch of the future which won't last forever.

As for me, I'm holding out for the '060 based machine...

MEMORY EXPANSIONS

The PC1204 4MB Memory Expansion for the Commodore Amiga 1200.

Power Computing's innovative 4MB 32-bit memory expansion for the Amiga 1200 is now available. The PC1204 includes these many features:

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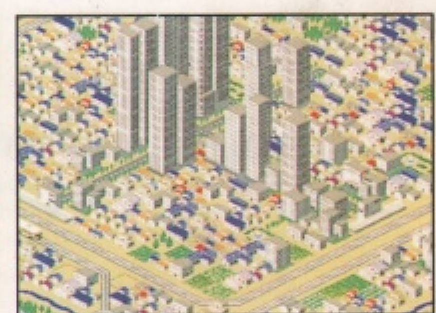
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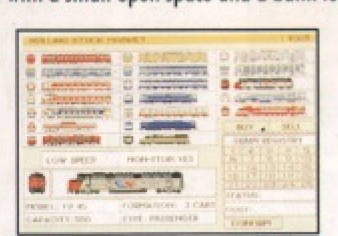
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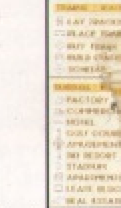
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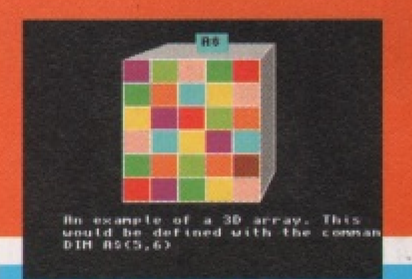
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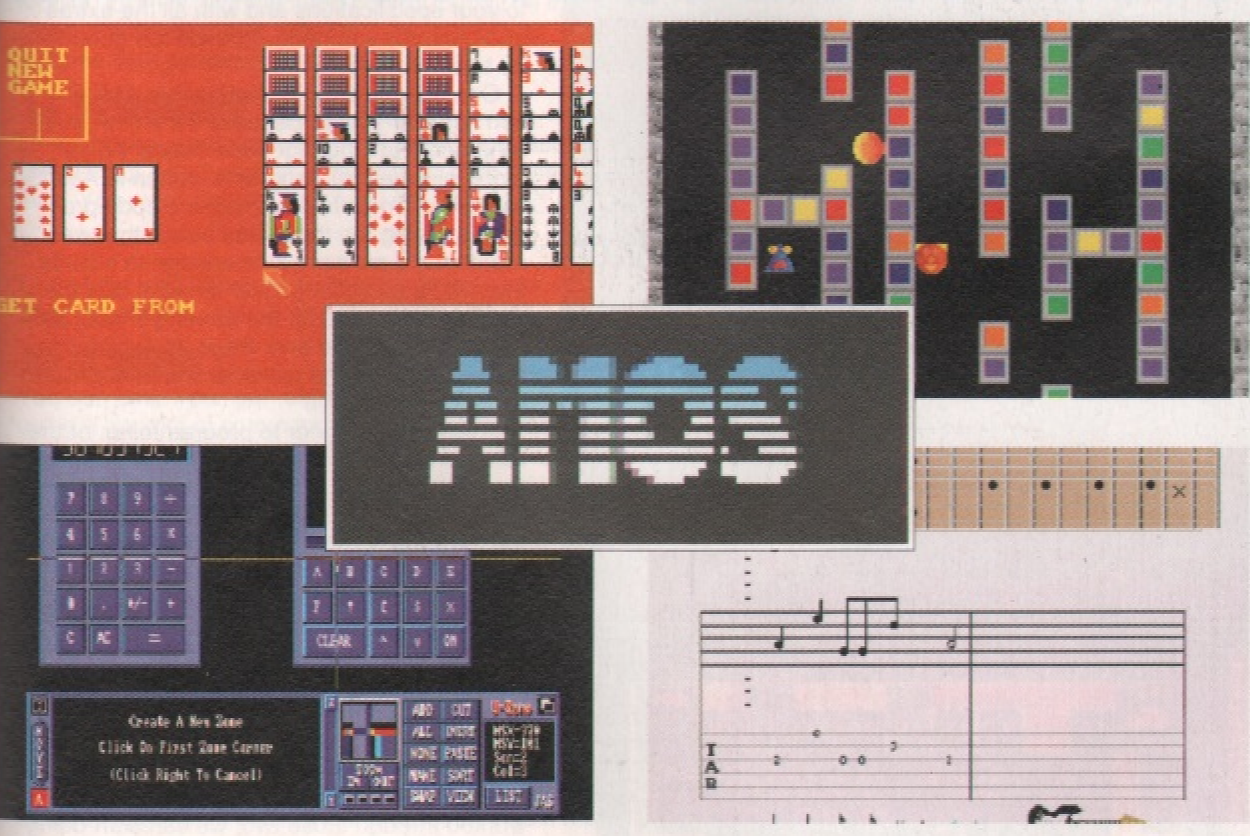
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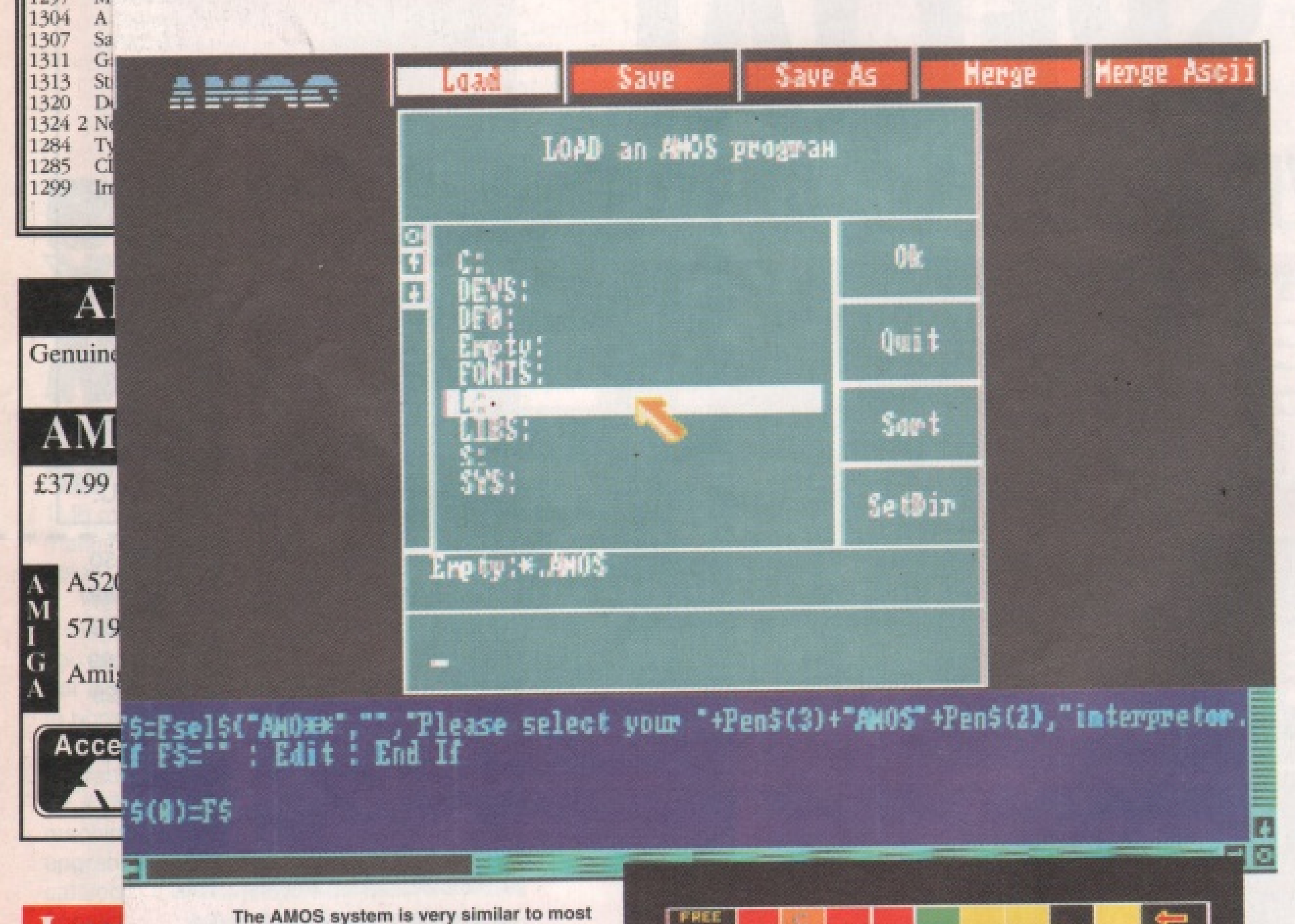
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32 PAGE SPECIAL

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CONTENTS

No doubt you've already been experimenting with last month's fabulous coverdisk giveaway, AMOS. In this supplement, we show you exactly what the program is capable of and how to get the best out it.



The AMOS system is very similar to most other Workbench-friendly utilities, so you should have no trouble at all getting to grips with it.

With a minimum of fuss and a little planning, you could be writing games as good as this. Honest!

Editorial

Welcome to the fifth in the series of CU Amiga supplements. As you have already noticed, this one is dedicated to the superb Amiga programming utility AMOS, given away on last month's coverdisk (if you don't have it, contact the back issues department immediately on 0858 410510) and aims to show you how to get the most from it.

Everyone has wanted to write their own games and utilities at some point. Perhaps you remember playing *Le Mans* on your old Commodore 64 and would love to play it again, only can't find a version of it anywhere on PD. Or you might want an address book/database but can never find one to suit your needs. Until now, the only options have been to wait for the right package to appear or get the next best thing. With AMOS, however, you'll be able to create the package you want, to your specifications and with all the extras and bonuses you need. Sounds too good to be true? Not at all.

One thing to bear in mind is that AMOS can't do everything. Because it's a high level programming language (see pages 4-5 for more information), programs written in AMOS will never run as fast as machine code programs. Being the thoughtful bunch that we are, though, we were kind enough to include the AMOS compiler on last month's disk too, which helps speed up the running of your self-written software no end. Page 24 explains in more detail how the compiler works and what it can do for you.

If you're a beginner to programming, or the Amiga in general, don't break into a sweat at the sight of all the listings and technical terms used in this guide. AMOS is the perfect tool for the beginner, giving you enough power to create some seriously impressive stuff, while at the same time keeping things simple enough for you to understand what you're doing.

In this guide, we'll take you through the basics of good game design, including a checklist of things to do before you start programming. We'll look at program construction and some of the data handling commands needed by every program. Once you've worked through those two, we can start doing some really interesting stuff, including AMOS's powerful graphic and sound commands.

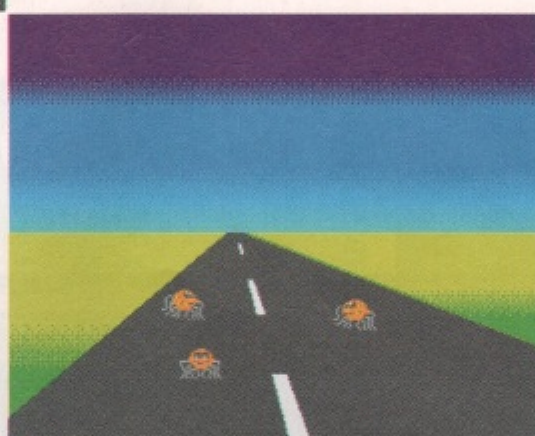
You'll learn how to add control routines to your programs, and how to achieve a whole host of unusual effects. And if all that isn't enough, we'll even show you how to turn your programs into standalone files, ready to be released onto the PD market, or even onto a CU coverdisk if they're good enough.

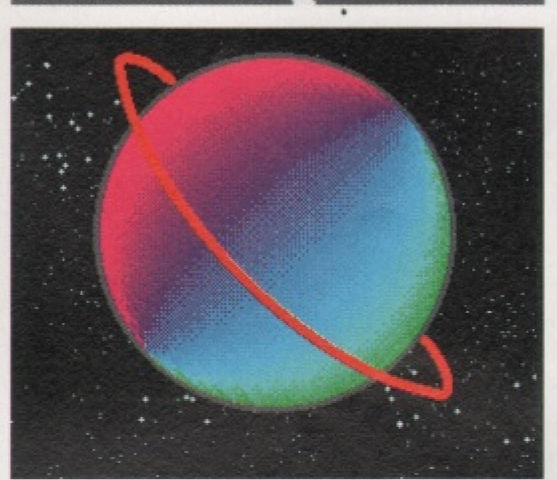
Programming is no longer purely the domain of the highly qualified expert. It's an exciting hobby that can often throw more challenges your way than *Monkey Island 2*. No doubt you can't wait to start, so let's go!

Contents

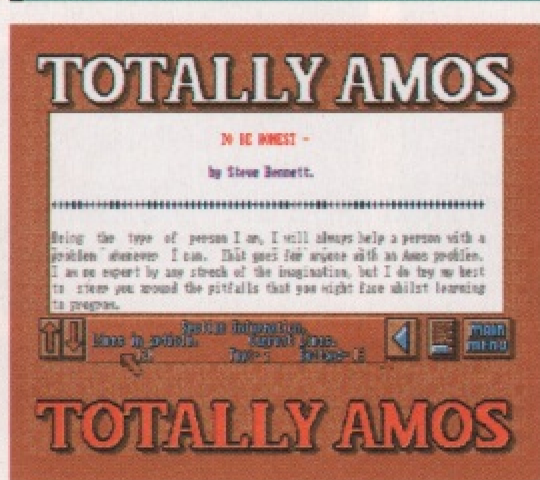


All the important instructions can be found in the menu bars at the top of the screen. See page 6 for more details.









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This issue of the Amiga Guide is free with the May 1993 issue of CU Amiga and must not be sold separately.

INTRODUCTION

Now that you've got AMOS loaded, you're probably wondering exactly what it is and what it's capable of. Here's the place to find out...

```
Run | Test | Indent | Blocks Menu | Search Menu
Run Other | Edit Other | Overwrite | Fold/Unfold | Line Insert
I  L-1  C-1  Text-30398  Chip-388688  Fast-263824  Edit: Versions.AMOS

' AMOS Versions displayer
' By Francois Lionet
' AMOS (c) Europress Software 1990-1991
'
' This small program will explore all the AMOS files
' and look for the version number within them.
'
Dim F$(100)
Set Dir 60

Screen Open 0,640,200,2,Hires : Colour 1,$FFF : Curs Off

Centre At(,1)+"( AMOS Versions )"
Print : Print

F$=Fsel$("AMOS**","","Please select your "+Pen$(3)+"AMOS"+Pen$(2),"interpretor.
If F$="" : Edit : End If

F$(0)=F$
```

The AMOS editor screen. Get used to it, because you'll be seeing a lot of it in the future!

AMOS is intended first and foremost as a game creation package, but it can be used for far more. Stepping around the usual problems associated with coding (tedious routine writing, masses of indecipherable codes and figures) AMOS uses an English-based parser to give novices the tool to create anything they want. A gateway to your Amiga's power, if you like.

In the past, game creators have generally been extremely limiting. You can spot a game written in *The Quill* and *3D Construction Kit* a mile off. Some say you can spot a game written in AMOS a mile off, but this is untrue. With AMOS, you can write anything you want, with only your imagination and experience shaping any barriers. To begin with, you probably won't be able to make *Midwinter 4*, or *Elite 3*, but don't let that stop you from trying.

PHRASE BOOK

AMOS itself is a compilation of two programming languages, the AMOS BASIC interpreter and the AMAL command language. The interpreter handles almost all of your code, turning your English commands into machine language for the processor to run. AMAL is the sprite animation suite that handles all the sprite and Bob (Blitter Object) routines. Together, they are capable of some fairly amazing things. But before you can use them, you need to understand how they work.

The interpreter is a derivative of BASIC (Beginners All-purpose Symbolic Instruction Code), the age-old language favoured by both schools and novices. Rather than try and work the processor directly, the interpreter provides you with a suite of over 500 English commands, which make for readable listings and a good understanding of what things do right

TABLE 1

```
PRINT "What is your name?"
INPUT Answer$
IF Answer$="Dan Slingsby" THEN PRINT "Hello Dan, Fancy meeting you here."
IF Answer$<>"Dan Slingsby" THEN PRINT "Have you seen Dan anywhere?"
```

INTRO

THE FILE SELECTOR



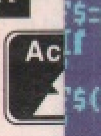
The file selector can look a little daunting at first, but don't worry, it's easier than it looks.

It's probably worth your while getting to know the file selector, as it's something you'll be seeing a lot of. It works in much the same way as any other, with the slider bar on the left sliding through the list of files, and the standard 'OK', 'Sort' and 'Quit' buttons on the right. But how do you actually use it?

First, click on the 'Load' button on the main menu bar. The file selector appears, and after a moment the list of files appears. If the file that you want is listed, fine, just double-click on its name to load it.

If, however, the file you want is in a directory, then you need to single-click on the directory name to open it, and then double-click on the name of the required file.

If your file is on a completely different disk, then remove the disk in the drive and insert the disk with your file on. Click on the small button above the slider arrows with the right mouse button to get a list of devices, and then click on the name of the newly inserted disk.



TO AMOS

from the start. The listing shown in Table 1 is a good example. You can probably already tell what that program will do when you run it.

THE EDIT SCREEN

Load up AMOS as shown last month (page 14), and take a good look at the main screen, known as the Edit Screen. This is where all the hard work happens. The strip at the top is the menu bar, and we'll be looking at that in just a moment. Below that is the information line, which tells you various things about your system at a glance:

I (Or O): Whether the editor is in Insert or Overwrite mode.
L=1: Current line
C=1: Current column
Text=: The amount of memory assigned to the editor
Chip=: The amount of chip memory free
Fast=: The amount of fast memory free
Edit=: The name of the current program

Along the side and bottom of the screen are the scroll bars, which allow you to move quickly and easily around your listing. These are used in exactly the same way as Workbench scroll bars. If you find them too fiddly, you can also move around using the cursor keys, so don't fret.

DIRECT MODE

If you press the escape key, a completely new work screen will appear. This is called Direct Mode, and it acts on each command as you type it, rather than waiting for you to run the program. If you typed PRINT 12/17 in Edit mode, nothing would happen until you ran the program. If, however, you type it here, the command is executed immediately without affecting the listing in Edit mode.

Direct mode allows you to try out commands before they form part of your program, as well as carry out various house-keeping duties without disturbing the flow of your programming. If you wanted to see how many sprites or samples you had in memory, check how much disk space was available or see how two colours went together, this is the place to do it.

RUNNING A PROGRAM

To load a program, you need to click on the 'Load' option in the menu bar, and then choose the file using the selector (see panel). Once it has loaded you'll be presented with the complete listing. Now, to run it, all you need to do is press F1, or click on 'Run' in the menu bar.

To stop a program in its tracks, without waiting for the logical end, you need to hold down the Control key and press the C key at the same time. This aborts the current program and returns you to the edit screen. To see what I mean, load the 'Scrolling Text Demo' from your AMOS program disk, run it and then abort it.

MEMORY BANKS

AMOS is capable of some fairly nifty sprite and sample handling, but like any other program the data for these need to be in memory at all times, and saved with the basic program.

This is done by using the AMOS Memory banks, 15 blocks of RAM used specifically for resource data. Once something is loaded into a memory block, it is automatically saved with the program, so there's no need to reload any of it the next time you load. To see how it all works, go to Direct mode, and load the sprite file on this month's coverdisk by typing:

```
LOAD "Kittens.Abk"
```

Once the file has loaded, jump back to edit mode. Notice how there's no listing? So how do you check if AMOS has loaded anything? Simple. Go back to direct mode and type:

```
LISTBANK
```

A list of the currently used memory banks appears, and there you should see bank 1 contains five sprites. To see them in action, enter:

```
Sprite 1, 200, 200, 1
```

We'll deal with sprites in more detail later on in this booklet (page 18).



AMOS direct mode allows you to try out commands and do a little housekeeping without disturbing your programs.





VARIABLES

One of the most important things to know about when using AMOS is variables. A variable is a named area of memory used for storing information, such as a name, a number or any string of characters. In the case of the listing on this page, Answer$ is the name of the variable. Think of it as a pigeon hole called Answer$. The INPUT command tells the computer to put whatever you type into the pigeon hole marked Answer$, and whenever the computer looks back at that hole, it will be able to read your answer. A variable can be called almost anything you like, as long as you follow these rules.

- A name by itself means an integer variable (no decimal places). A, Answer and Total can all be used as integer variable names
- A name with a # after it is a real number variable. The command A=10/4 would mean that A=3. A#=10/4 would give the result 2.5
- A name with a $ after it is a string variable, meaning that the variable will only have characters.
- A variable can't have the same name as an AMOS command. PRINT, NEXT and DIM can't be variable names, but PRT, NXT and D can.
- Variables are reset every time the program is started, so don't expect to see the same data the next time you load your file.
- A variable will only work in the part of the program it belongs to. To make a variable available for the entire program, including procedures, you need to make it Global. At the start of your program, include the command GLOBAL, and then the names of all the variables you want to use, separated by commas. For example:

```
GLOBAL Answer$, A, Hello#
```

THE MENU BARS

Do you really know what 'Block Hide' and 'Close All' do? If you're still a little confused by the mystic menu bars, then read on.

Those 10 words that you can see at the top of the screen constitute the menu bar, and that little box is going to make your programming life much easier, once you've got the hang of it. It contains 40 useful commands that let you do all sorts of system management tasks without touching a key. To use each one, all you need to do is move the mouse pointer so that it highlights the option you want to select, and then single-click on it with the left mouse button. Alternatively, you could just press one of the function keys. The top five options are selected using the keys F1 to F5, and the bottom row are selected using the keys F6 to F10.

THE DEFAULT MENU

This menu deals directly with the AMOS editor, and is on screen by default.

This is the menu that is on screen when the package loads, and when no keys are being pressed. It gives you access to two other menus, as well as giving you complete control over the editor. The commands are as follows:

F1: RUN: An obvious one really, this option runs the program currently displayed on screen. Before it runs it, it will test it for typing errors and similar bugs. If it finds any, it will alert you and abort the running.

F2: TEST: Like the Run option, this one checks the program for errors, alerting you as it finds them. As soon as it finds one, it stops the test and places the cursor next to the error.

F3: INDENT: To make your programs more readable, you might want to indent loops and procedures, making them easier to spot when scanning over the listing. Choosing this option automatically indents the program in memory.

F4: BLOCKS MENU: This option calls up the blocks menu, which we'll look at later.

F5: SEARCH MENU: Another menu that can be called from the default one. Again, read all about it later.

F6: RUN OTHER: AMOS allows you to hold two programs in memory at the same time. To run the other one, for example a sprite editor, use this option.

F7: EDIT OTHER: This option simply switches over between the currently displayed listing and any others that you might have stored in memory.

F8: OVERWRITE: This switches between the two editing modes. 'Insert' automatically makes room in the listing for anything you type, whereas 'Overwrite' writes over the current listing, replacing existing text with the new characters.

F9: FOLD/UNFOLD: This is used to hide procedures. If you have a particularly lengthy procedure which you find is slowing down your editing of the program, placing the cursor within it and pressing this key 'folds' it into memory, leaving only the title line of the procedure on display. To get your procedure back again, all you need to do is select this option again.

F10: LINE INSERT: This option creates a blank horizontal line at the current cursor position, making space for new lines.

THE SYSTEM MENU

The System menu gives you access to the floppy, as well as use of any accessory programs you may have loaded.

The System menu gives you access to the disk drive, and is displayed by holding down the shift key. With the shift key held, the function keys work as before.

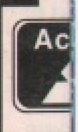
F1: LOAD: Again, this one is self-explanatory: it loads a file from disk. You can then select the file using the file selector.

F2: SAVE: The opposite of load. Saves the current file to disk.

F3: SAVE AS: Lets you save the current file under a different name.

F4: MERGE: Inserts a program at the current cursor position without erasing the previous listing. With this, programs can be written in modules and then added together at the end.

MENU BARS



F5: MERGE ASCII: If you like, you can write your AMOS listings using your favourite word processor, remembering to keep the line format the same. Save your document as an ASCII file, and then use this option to load it into the interpreter.

F6: ACC NEW/LOAD: Clears all the current accessories from memory, and loads all files off disk that have the '.ACC' extension.

F7: LOAD OTHER: This loads another program from disk and puts it in memory without displaying the listing. This is particularly useful for accessories such as the sprite designer, which it is always handy to have stored in memory.

F8: NEW OTHERS: Clears all accessories from memory. For accessories, read 'Programs not displayed in the edit window'.

F9: NEW: Clears the current program from memory. If the program isn't saved, the interpreter will ask you if you want to save it. Type 'Y' or 'N' to answer.

F10: QUIT: Exits AMOS and returns to the CLI. You will be prompted to save your program before the system exits.

ALTERNATIVE KEY SHORTCUTS

The AMOS edit window features a number of other keyboard shortcuts for menu selection. Here's the full list.

Amiga+L:	Load a program
Amiga+S:	Save a program
Shift+Amiga+S:	Save As
Control+B:	Block Start
Control+E:	Block End
Control+C:	Block Cut
Control+P:	Block Paste
Control+M:	Block Move
Control+S:	Block Store
Control+H:	Block Hide
Control+F:	Find
Control+N:	Find Next
Control+R:	Replace
Control+TAB:	Set Tab

THE BLOCKS MENU

The Blocks menu lets you manipulate large chunks of your program with ease, which is useful for tidying things up afterwards.

If you've ever used a word processor, you'll already be familiar with the principle behind 'Cut and Paste'. The Blocks menu lets you lift large sections from your listings and move them around using only a couple of mouse clicks. To show the blocks menu, hold down the Control key.

F1: BLOCK START: Marks the start of the block you want to highlight. Move the cursor in front of the first character and select this option.

F2: BLOCK CUT: Removes the highlighted block from the listing and stores it in memory.

F3 BLOCK MOVE: Moves the highlighted block to the new cursor position and deletes it from the old position.

F4: BLOCK HIDE: Deselects a selected block.

Once a block of text has been highlighted, it can be lifted or removed at the touch of a button.

F5: SAVE ASCII: Saves the selected block as an ASCII file, which can then be loaded into any standard word processor.

F6: BLOCK END: Marks the end of the block. Move the cursor to the end of the block that you want to highlight and then select this.

F7: BLOCK PASTE: Places a block stored in memory at the current cursor position.

F8: BLOCK STORE: Copies the block into memory but doesn't affect the listing.

F9: BLOCK SAVE: Saves the currently selected block to disk as an AMOS program file. The block can then be merged into another program.

THE SEARCH MENU

When you select the Find option from the search menu, this prompt asks you for the string to search for.

Where is that text you need? The search menu will look for it for you.

The search menu does exactly what you would expect it to do. It hunts through your listing for a pre-set string of characters, such as a variable name, and then does one of a number of things. To display the Search menu, hold down the Alt key.

F1: FIND: This option prompts you for a string of characters, and then searches down from the current cursor position until it finds a perfect match.

F2: FIND NEXT: The Find option stops when it finds the first match. This option prompts it to look for another match further along.

F3: FIND TOP: This is exactly the same as the Find option, only this one searches from the top of the listing regardless of the current cursor position.

F4: REPLACE: Searches through your listing for a match, and then replaces it with a second string input at the start of the search. If you have a variable name that you want to change, using this option is the easiest way of doing it. You will be asked to confirm each replacement.

F5: REPLACE ALL: Changes all copies of a word in your listing.

F6: LOW<>UP: Represents case sensitivity. In this mode, the search routine differentiates between upper and lower case characters. Clicking on this changes the mode to LOW=UP, in which upper and lower case letters are treated as identical.

F7: OPEN ALL: Opens all closed procedures in your program.

F8: CLOSE ALL: Closes all open procedures in your program.

F9: SET TEXT B: Lets you change the size of memory available for your listings. The more memory you have, the larger the programs you can fit into memory.

F10: SET TAB: This allows you to set the number of character spaces between each tabulation marker.

GAME DESIGN

Design is the backbone of any program. With a good design, the whole programming experience becomes much easier to handle. Here's what to look for.

Before any programmer can put his or her fingers to the keyboard, they must put pen to paper. A solid game design is the key to successful programming, as anyone who has tried to work without one will no doubt tell you. By figuring out right at the beginning how your program will work, what it will do and what it will look like, you'll save yourself all sorts of hassle later on in the project.

But, you might be asking, how exactly do I make a design? The first thing you need to do is work out exactly what you want to create, and then sketch a couple of notes. If, for example, you wanted to create a shoot 'em up, then you might write something like:

"*Big Guns* will scroll both ways over a dozen levels, each one set on a different planet. The aim will be to shoot a certain number of alien eggs before they spawn alien ships. There will be four different weapon upgrades, ranging from a simple laser to homing missiles. At the end of each level, you'll be able to buy the weapons with your points – the higher your score, the better the weapons you can buy."

ON YOUR OWN TERMS

OK, so that's your brief. Now you need to think about that in programming terms. How will you make the game scroll both ways? How can you tell when the eggs are ready to gestate? How are the different weapons going to be represented? All these decisions must be made early on, just for the sake of practicality. Some things might not be possible without a loss of speed or playability, and correct planning will ensure that you spot these things early on.

RUNNING ORDER

Now comes the tricky part. You have to work out a running order for the program listing itself and begin to formulate the routines and patterns involved in making your program work the way you want it to. How are you going to get the ship and the backdrop scrolling? How many times a second should you read the joystick? That sort of thing. It might seem daunting, so let's break it down into smaller programs.

Figure out the various components of your game, and work on each separately. In the case of the scrolling, your notes would look something like this:

```
(Variable D=Scrolling direction (1=left, 2=right)
display screen
check D
adjust screen position accordingly
display screen again
```

This may not sound much like a guideline for a game, but it's only preparation for a flowchart.

FLOWING NICELY

As a rule, flowcharts are impossibly dull to create. However, they are also invaluable when writing a game. If you are creating an especially long listing, it's handy to have a list to refer to in order to stop you from getting lost.

A flowchart breaks a program down into single steps, making the entire challenge much easier to cope with. In a game like the one that we have referred to above, writing an engine that moved the backdrop and kept track of all the sprites on screen at once from scratch would be too much for the beginner. Working from a well-written flowchart makes it simple enough for even a Megadrive owner to get to grips with.

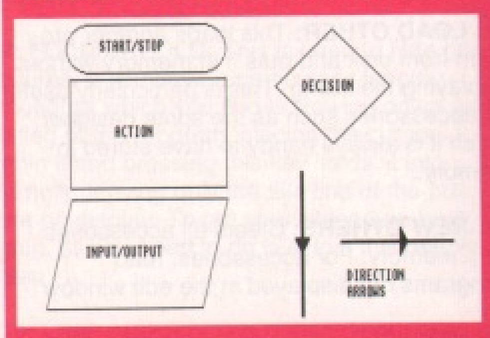
To design your flowchart, you need to break your program down again, into the smallest lumps you can. Remember, the more you break it down now, the less you have to figure out later on.

OTHER POINTS TO CONSIDER

The listing itself isn't the only thing that needs a lot of thought put into it. You should also spend some time working out how the game will look and sound. Can you draw well? Are you able to compose a suitable soundtrack for the game?

It's best to be honest with yourself – if you don't think you're up to a certain task, then find someone who is. It makes all the difference in the end.

FLOWCHART SYMBOLS



Although you don't have to follow the old-school flowchart style, it can make things a lot easier. for you in the long run. Here are the five main symbols you will find yourself working with.

1) ACTION

This represents anything done within the computer, such as calculating variables, reading data or setting up a screen.

2) INPUT/OUTPUT

This represents any form of input or output, from displaying something to reading the joystick.

3) START/STOP

This one is obvious – I don't really need to tell you what it is for.

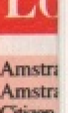
4) DECISION

For those moments when the program can go one of two or more ways, a decision box shows the possible routes. Write the question in the box, and label the exit arrows where possible.

5) ARROWS

The direction arrows show the flow of the program, and it's vitally important that you mark the direction on them; without them, routines such as procedures become impossible to understand.

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YOUR FIRST STEP

Now that you understand how to transfer your design into a program flowchart, you're ready to program. Here we go...

Before you can really piece together an AMOS program, you need to spend a little time familiarising yourself with the fundamental components of the language and its construction. I know it sounds like you need to do a degree course, but believe me it isn't that bad. These pages outline the basics of AMOS construction, which you'll need if you're to turn your flowchart into a fully functioning program.

VARIABLES

Any piece of information which is stored and used again (a player's name, the number of ships left in a shoot 'em up etc.) is stored in memory and labelled. This is known as a variable, so called because the information can vary but the name remains the same. To assign information to a variable, we use the command Let, like this:

```
Let MAG$ = "CU Amiga"
```

Mag$ is the name of our variable in this case, and we are filling it with the name 'CU Amiga'. Now we have that information stored, anytime we want to use that name, we can call Mag$. Here's an example:

```
Let MAG$="CU Amiga"
Print "My favourite magazine is ";Mag$
```

See how it works? You can change the information in a variable to almost anything you like – try it. Change the information, and run the program again. Now add these lines to the start of the program, before all the others.

```
Let MAG$="Homes And Gardens"
Let MAG$="MCN"
Let MAG$="Creative Cricket"
```

What will happen if you run the program now? Run it and see. The contents of a variable can be altered as many times as you like, but the program will always replace the old information with the new.

When naming a variable, a couple of rules need to be followed. Firstly, no two variables can have the same name. Secondly, a variable can't contain the same letters as a program instruction (Print, Run, Draw). Thirdly, some variables need an extender on the end of the name. Mag$, for example, is a String variable, denoted by the dollar sign ($) at the end of the name. You can put anything you like in a string variable, but bear in mind that any numbers you store here are stored as characters rather than mathematical symbols – you won't be able to use them in mathematical terms. All strings are enclosed in quote marks (""); without them you'll get an error message.

There are two other kinds of variable recognised by the system. The first are Integers (Whole numbers). These have no extender after the name, and only numbers can be stored in these. If you try to store a string of characters, you'll get an error message. The other kind are Real numbers, which allow decimal places, unlike Integers. A real number is recognisable as having a hash (#) after the name. With that in mind, can you tell which of these are legal and which aren't? Try them and find out.

```
Ed$="Dan Slingsby"
Age="21"
Time=12.50
Time$=12
Run=50
Precise#=3.14159
```

CONTROL ROUTINES

AMOS contains a variety of different commands for controlling the flow of your program, which range from simple directions to condition testing and directing a program depending on the outcome of a variable. These will probably seem a little complicated at first, but try them out a few times, and you'll find them a lot simpler to use than an equivalent program that doesn't use them!

FOR...NEXT

If you have a segment of program that needs to be repeated a certain number of times, a simple loop is the easiest way to do it, rather than write out the same piece of code over and over again. If you wanted to print your name 20 times, you could write:

```
Print "My Name"
Print "My Name"
Print "My Name"
```

and so on, but surely it would be far easier to use something like:

```
For A=1 to 20
 Print "My Name"
Next A
```

'A' is a variable, and can be anything you like. See how it works?

DO...LOOP

If you have a piece of program that you want repeated indefinitely, looping forever, then a Do...Loop loop is all you need. Do marks the start of the loop, and the Loop command tells the program to go back to the Do instruction.

```
A=0
Do
 Print A
 A=A+1
Loop
```

REPEAT...UNTIL

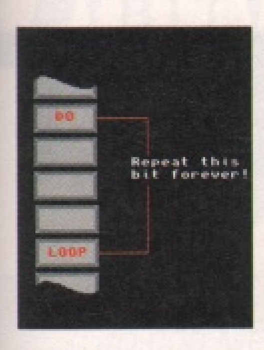
Let's assume with the program above that you want it to count to a present random number. There are two ways to do this – one is to do a For Next loop with a random number in the For instruction. The other is to do a Repeat...Until, where the program will break the loop once a condition has been met. Try this:

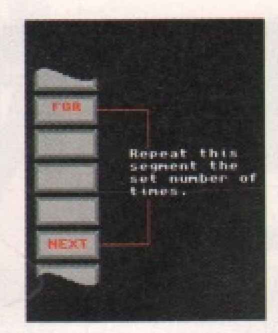
```
Z=Rnd(30000)
A=1
Repeat
```

FIRST STEP










```
 Print A
 A=A+1
Until A=Z
Print "Found It At Last"
```

IF...THEN...ELSE

Condition testing is the heart of programming. An If..Then instruction is the heart of decision making – we do it every day. IF it's warm THEN don't wear a coat, that sort of thing. In the programming sense, it works in exactly the same way. Try this:

```
z=0: B=Rnd(9)+1
Repeat
 Print "Give me a number between 1 and 10"
 Input A
 If A=B then print "Correct!":Z=1
 If A<>B then print "No, sorry"
Until Z=1
Direct
```

The three condition testing symbols are:

'='	Equal to
'<'	Less Than
'>'	Greater than
'<>'	Not equal to

Combinations of these can be used (provided that they don't contradict each other – something can't be equal and not equal!) in any of the condition tests.

If you like, you can extend the instruction to include 'Else'. This tells the machine what to do if the condition isn't true. With this, our new program would look something like:

```
z=0: B=Rnd(9)+1
Repeat
 Print "Give me a number between 1 and 10"
 Input A
 If A=B Then z=1 Else Print "Sorry, try again."
Until Z=1
Print "Well done!"
Direct
```

WHILE...WEND

A While...Wend loop is similar in principle to a Repeat..Until loop in that it waits for a condition to be met before it breaks the loop. The instruction While is followed by the condition, and Wend signals the end of the loop. For example:

```
X=0
While x<20
locate x,0
print "*"
X=X+1
wend
Direct
```

END/EDIT/DIRECT

These are used to end the program. The first, End, just stops things in their tracks, and asks you which mode to go to. Edit ends the program and goes straight back to Edit mode, and Direct ends the program and goes straight to Direct mode. To see how they work, replace the 'Direct' command at the end of the last program with 'End' or 'Edit'.

ON...PROC/GOTO

On... is a very powerful command indeed. It works with an integer variable to determine where the program should branch to. An example of this is a menu screen. If you wanted, you could just put:

```
If a=1 then PROC1
If a=2 then PROC2
```

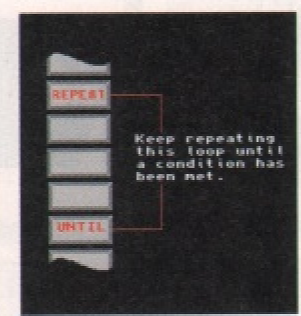
and so on. Or, you could use a command like:

```
On A PROC1, PROC2, PROC3, PROC4...
```

Try the listing in Table 1 to see how it works.

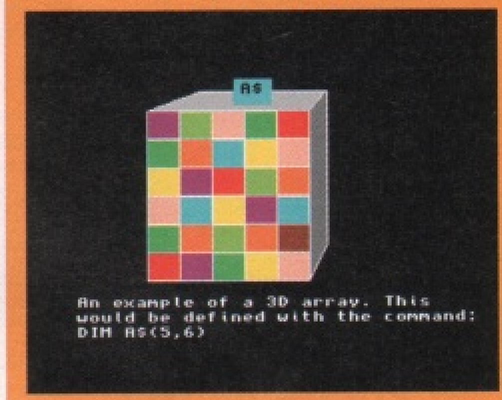
TABLE 1

```
Do
  Cls
  Print "1) Option 1"
  Print "2) Option 2"
  Print "3) Option 3"
  Print "4) Goto Editor"
  Print "5) Goto Direct"
  Input A
  On A OP1,OP2,OP3,Edit,Direct
Loop
Procedure OP1
  Cls
  Print "You chose Option 1"
  Wait Key
End proc
Procedure OP2
  Cls
  Print "You chose Option 2"
  Wait Key
End proc
Procedure OP3
  Cls
  Print "You chose Option 3"
  Wait Key
End proc
```



Three diagrams to show how the different control structures work. The Do-Loop routine will run forever, but the For-Next and the Repeat-Until loops will run until a specified condition has been met, such as a score reaching a certain level.

ARRAYS



Variables can be clustered together in Arrays like this one.

Let's say you are dealing with a large set of variables in the same format – as in a database. You could name each variable separately, (X1, X2, X3, X4, X5), but that wastes a lot of memory and makes the program hard to follow. What you need is an array – a collection of shoe boxes stuck together. An array has a single name, and the contents are called using a co-ordinates system. Arrays can be in as many dimensions as you want, from two to 10 dimensions.

DIM

Dim creates a new array ready for filling. DIM CU(10) creates an array with 10 spaces. DIM CU (10,10) creates an array with 10 main spaces broken into 10 more, giving 100 spaces.

READ, DATA

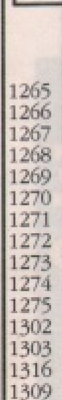
Filling an array by hand can be time-consuming, if you use Let array(1)=XXX, Let array (2)=XXX etc. The simplest way to do it is to set up a Read statement and a collection of data. Read reads the next item of data and puts it in a preset position, as shown here:

```
Dim STAFF$(7,2)
For name=1 to 7
  For place=1 to 2
    Read Staff$(name, place)
  Next place
Next Name
Data "Dan","Editor","John","Dep Ed","Nick","Tech Ed","Gordon","Design","Mat","Tech Advice","Tony H","Star Fighter","Tony D","Freelance"
```

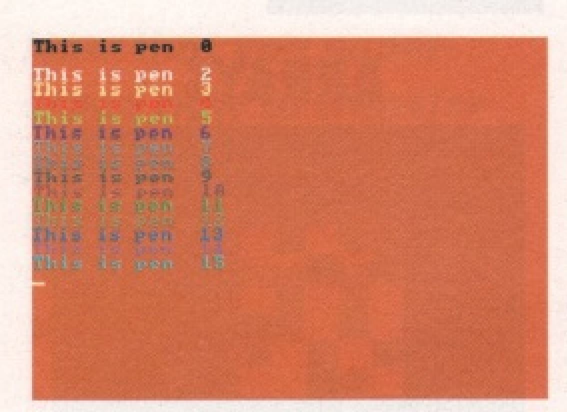
Run the program, and nothing will happen. What you need to do now is check that the array has been filled. Add the following lines to the program:

```
For Name=1 to 7
  Print staff$(name,1),staff$(name(2)
Next Name
```

Handy, isn't it?



WORKING WITH TEXT



To begin with, most of your programs will probably involve a lot of text manipulation, and there are few packages than can handle this better than AMOS.

Practically every program you ever write will include some text, whether it's just your name scrawled on the title page or a complex parser for an adventure game. Working with text is one of the easiest things that you can do with AMOS, which is why most people's first program involves writing their name in random colours all over the screen. Here are the main text commands used by AMOS and some examples of how to get the best out of them.



PRINT

The first command you need is Print, which obviously prints something to the screen. It always prints at the current cursor location, and works in two ways. If the command is followed by a string of characters enclosed in quote marks (""), it will print the contents of the quote marks only. For example:

Print "Hi Dan" will print Hi Dan.
Print "12*7" will print 12*7.

If you take away the speech marks, however, something totally different happens. Instead of printing the entered characters, the program will look for a variable in that name, or if you have entered a mathematical operation, it will print the answer. In our examples, the program would look for a variable called 'Hi Dan', and would also print 84.

LOCATE

So far, whenever you have used a print statement, it has always printed in the top left-hand corner of the screen or down the left side. So what happens when you want to print in the middle of the screen? I'll give you a clue: the text always prints at the current cursor position. Give up? You move the cursor. There are two main ways to do this, the easiest being to use the Locate command.

To use the Locate command, all you need to do is specify where you want the cursor to move to, using two co-ordinates, the first to specify the X (across) position, and the second to specify the Y (down) position. For example:

```
LOCATE 17, 10: PRINT "HI DAN".
```

will print a message to the Ed. slap bang in the middle of the screen.

CMOVE

CMOVE is short for Cursor Movement and is the other main way of shifting the cursor position. Instead of nominating an absolute position via co-ordinates, CMOVE works by moving the cursor relative to its current position. Again it uses a set of co-ordinates, which are added to the current cursor co-ordinates. Positive numbers move the cursor to the right and down, and negative numbers move the cursor left and up. Try this example:

```
Locate 17,10
Print "HI DAN"
Cmove -6,-2: Print "Above"
Cmove -6, 4: Print "Below"
```

See how it works? Experiment with different co-ordinates in the Locate command to see the benefits of the Cmove command.

PEN

The Pen command changes the colour index of the text printed on screen. Depending on your screen mode the index numbers can run from 0 to 63. All subsequent text will be printed in the selected colour until another Pen command is used. Try this example:

```
For P=0 to 15
  Pen P
  Print "This is Pen" ;P
Next P
```

PAPER

The Paper instruction works in the same way as the Pen command, only this time it changes the background colour beneath the text. If you imagine that each character is a letter on a typewriter, then you'll know that there is a square of metal around each letter. It's this area that the Paper instruction changes. Try this program to see what I mean:

```
For P=0 to 15
  Paper P
  Print "This is Paper" ;P
Next P
```

INVERSE, SHADE, UNDER

Inverse mode is when the Pen and Paper colours are reversed, creating a negative of the text. This type would be white ink on black paper when inverted. Shade mode darkens the text slightly to highlight it. Underline mode draws a line underneath your text. All three modes are switched on using XXX On, and switched off with XXX Off (replace XXX with the appropriate command). Try this program to see how it works.

```
For P=0 to 13
  Paper P: Ink P+2
  Print "Text in normal mode."
  Inverse On
  Print "Text in Inverse mode"
  Inverse Off
Next P
```

Replace the Inverse command with the Shade command, and then try it together with the Under command.

MOVING ON

You now know enough to start writing your own programs. Try to write a program that asks you for your name, and then prints it all over the screen in a variety of styles and colours. Once you can do that, you're ready to tackle the next stage.





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INTERACTION

A game often stands or falls on its control method. On these pages we show you how to ensure that yours is a winner.

You already know one method of entering data from the keyboard – the Input command – but there are a variety of others which can be used to far greater effect.

INKEY$

Inkey$ tests the keyboard to see if a key is being pressed, and enters it directly into a variable. Whereas input requires a 'return', Inkey$ works immediately. If no key is pressed, the instruction leaves the variable blank and carries on. See Table 1.

TABLE 1

```
Do
  X$=Inkey$
  Print x$;
Loop
```

But what if you want the program to wait until you have pressed a key? One way to do this is to stick a small If...Then line in the program. See Table 2.

SCANCODE

Scancode is used to check the internal number for any of the keys on the Amiga keyboard, including the ones with no visible effect, such as 'Help' or the function keys. See the example in Table 3.

Once you have your Scancodes, you can use them in conjunction with the Key State command, which tests whether a key is currently being pressed. If the Key State test is true, it will return a result of True. To see what I mean, have a look at Table 4.

INPUT$

Input$ is a different command to Input, so read this carefully. Input$ asks for a set number of characters, and places them in a nominated variable. See Table 5 for an example.

TABLE 2

```
Do
  z=0
  Repeat
  x$-Inkey$
  If x$<>"" then z=1
  Until Z=1
  Print x$;
loop
```

TABLE 3

```
Do
  While K$=""
  K$=Inkey$
  Wend
  If Asc(k$)=0 Then Print "You
Pressed A Key With No ASCII Code!"
  Print "The Scancode is ";Scancode
  K$=""
Loop
```

TABLE 4

```
Do
  If Key State (69)=True Then Print
"You've Escaped!"
  If Key State (95)=True Then Print
"No I won't help you!"
Loop
```

WAIT KEY

This instruction pauses the program until any key has been pressed.

STICK AROUND

Reading the joystick in AMOS is something that you will inevitably be using a great deal, so you'll be happy to know that there are a few simple commands that make this just as easy as printing your name. The commands are as follows:

JLEFT, JRIGHT, JUP, JDOWN, FIRE

These five commands check if the various directions (counting the fire button as a direction) are being used, returning a value of 1 if the test is true. The number in brackets which follows the instruction is the number of the port under test. See Table 6.

TABLE 5

```
Clear Key: Rem Clears keyboard
buffer
Print "Please type 10 letters"
c$=Input$(10): Print "You typed ";c$
```

TABLE 6

```
Do
 If Jup(1) Then Print "Up"
 If Jdown(1) Then Print "Down"
 If Fire(1) Then Print "Fire"
Loop
```

MOUSEY MOUSEY

The Amiga is perfectly suited to mouse-controlled games, and AMOS is more than capable of creating those games.

HIDE/SHOW

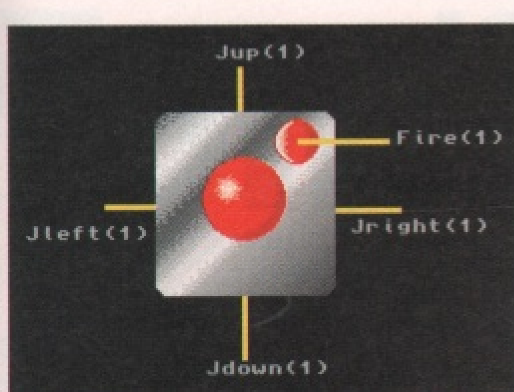
These two commands are used to hide and redisplay the mouse pointer, for joystick controlled games such as shoot 'em ups. Use the command Hide On to remove the pointer, and Show On to redisplay it.







INTERACTION



The five joystick directions and the commands used to read them. Remember, the number in brackets is the joystick port.

CHANGE MOUSE

This instruction lets you change the graphic used for the mouse pointer. There are three pointers in memory at all times, so the command Change Mouse 1, 2 or 3 changes the pointer to an arrow, a crosshair or a clock. Any number higher takes a graphic from the sprite bank. Your only limit is that the graphic can't be any more than 16 pixels wide or have more than four colours.

MOUSE KEY

This checks the status of the mouse buttons, and returns a bit-pattern. To see the bit patterns available, try the program in Table 7.

TABLE 7

```
Do
 Locate 0,0
 M=Mouse Key: Print "Bit Pattern
Number ";M
Loop
```

To do a one shot test of the mouse buttons, to see if a button has been 'clicked', use the Mouse Click command instead.

X MOUSE, Y MOUSE

These two commands fill double functions, depending on the way they are used. In the format 'Variable=X Mouse', the current X hardware co-ordinate (which isn't always the same as the screen co-ordinate) of the mouse is stored in a named variable. This is useful for testing where the mouse is.

By inverting the command, and using it in a different way ('X Mouse = 100'), you can set the X hardware co-ordinate, thereby moving the mouse to a new position. See in Table 8.

LIMIT MOUSE

Normally the mouse has the run of the screen, but you can limit its movements to a rectangular portion by defining the top left and bottom right corners of the box of hardware co-ordinates. Try this program:

```
Limit Mouse 50,50 to 300,200
Wait Key
```

TABLE 8

```
Do
 X=X Mouse: Y=Y Mouse
 Locate 0,0: Print "X:";X;" Y:";Y
 If Mouse Click then X Mouse=Rnd(320):Y Mouse=Rnd(200)
Loop
```

MENUS

Menu bars are something we all take for granted – anyone who has had more than a week with an Amiga knows that holding down the right mouse button makes a line of menu options appear. With that in mind, one of AMOS's strongest points is its ability to build large and complex menus with minimum fuss.

MENU ON

Turns on the menu bar. Don't bother doing it at the moment, because you haven't defined a menu yet. To do so, you need to use the Menu$() instruction. This works in two ways. The first is to have a single figure within the brackets, which defines a title for the menu bar. Therefore:

```
Menu$(1)="About"
Menu$(2)="Options"
Menu On
6
```

Creates an active menu bar, but with no options. You need to create the options with the second use of the Menu$() instruction. This time you use two or more figures between the bracket, separated by commas. The first figure shows which menu heading the menu option appears under, the second is the order the item appears in, the third (if there is one) puts the option on a side branch menu. Add the lines shown in Table 9 to the program. Now run the program and see how it works.

CHOICE

The Choice() instruction is used to see which menu option you have chosen. The instruction 'head=Choice' will read the menu heading number into the variable 'Head'. To read the menu option chosen, you need to number the Choice command. Add the lines in Table 10 to your listing to see what I mean.

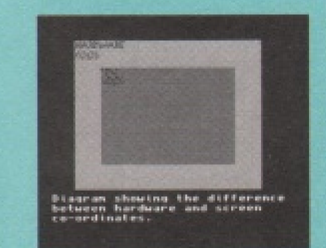
TABLE 9

```
Menu$(1,1)="About Menus"
Menu$(1,2)="About CU"
Menu$(2,1)="New Game"
Menu$(2,2)="Old Game"
Menu$(2,3)="Quit"
```

ON MENU PROC

Instead of writing out a whole string of commands every time you want to read the menu, you can assign a procedure to each of the menu titles using the On Menu Proc instruction in conjunction with the On Menu On command. This system checks the menu bar 50 times a second without any programmed checks by you, so your program can continue as normal. Try the listing in Table 11.

Note: Once 'On Menu Proc' has been used, the On Menu On system stops, so remember to put an 'On Menu On' at the end of each procedure.



Hardware co-ordinates refer to the entire screen, not just what's visible, as this diagram shows.

TABLE 11

```
Menu$(1)="Mouse":
Menu$(2)="Quit"
Menu$(1,1)="Arrow":Menu$(1,2)="
Cross":Menu$(1.3)="Clock"
Menu$(2,1)="Editor":Menu$(2,2)="
Direct"
Menu On
On Menu Proc MSE, QWIT
Rem: Do something
Do
 For x=1 to 100
 print X;
 Next X
Loop
Procedure MSE
 If Choice(2) then Change Mouse
Choice(2)
 On Menu On
End proc
Procedure QWIT
 If Choice(2)=1 then Edit
 If Choice(2)=2 Then Direct
 On Menu On
End Proc
```

TABLE 10

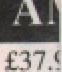
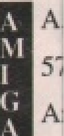
```
Do
 If Choice and Choice(1)=1 and Choice(2)=1 Then Print "This is a menu option"
 If Choice and choice(1) =1 and choice(2)=2 Then Print "What do you want to know?"
Loop
```

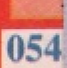
BASIC GRAPHICS

Before you dive headlong into the slightly difficult world of sprite and blitter objects, why not play around with AMOS's more fundamental graphic tools?

Bars and boxes like these can be used for all sorts of applications, such as prompt windows or selector boxes.

AMOS has a large collection of tools for defining open and closed polygons and other geometric shapes. All are based on a simple co-ordinate system, with the first figure marking the position across from left (0) to right (320) and the second figure marking the position from the top (0) to the bottom (200 NTSC, 256 PAL).


RAINBOW BRITE!

Before you draw anything you need to choose your colours. AMOS has a few simple, but effective instructions for palette selection. One thing to note here is the colour index syntax. This is the name given to the settings of the individual colours.

A colour index is a three-figure hexadecimal figure which tells the processor how much red, green and blue should be mixed to create the colour – just like using the colour mixer on a program such as *Deluxe Paint*. Take a look at the quick decimal/hex conversion table below.

INK

The Ink command is used to set the colour for subsequent drawing operations, and works in exactly the same way as the Pen command. See Table 1.

TABLE 1

```
I=4
For A = 10 to 100 Step 10
  For B = 1 to 10
   Ink I
   Draw 10, A+B to 180, A+B
   Next B
  I=I+1
Next A
```

COLOUR

This instruction sets a colour in the palette to a specified colour index. Add these lines to the start of the previous listing, and see if you can guess what colours will appear:

```
Colour 4, $0F0
Colour 5, $111
Colour 6, $D0D
Colour 7, $123
Colour 8, $AF0
Colour 9 $002
```

PALETTE

Obviously, keying in all those Colour commands every time you want to change the palette is going to get very tiresome; with the Palette command you can change all the colours at once by typing a string of colour indexes separated by a comma. If you don't want to change a particular colour, then just leave a space between that pair of commas.

PLOT

Plot colours a single pixel on screen using the current Ink colour. For example:

```
Ink 10
Plot 100,100
```

DRAW/POLYLINE/POLYGON

The Draw command draws a straight line between two points. Both points can be set, or you can leave it to draw from the current cursor position. To see what I mean, go to direct mode, clear the screen using CLS and type the following line:

```
Draw 100,100 to 200,100
```

Bingo, a line appears. Now try the next line:

```
Draw to 50,50
```

See how the line has automatically been drawn from the end of the last one? Incidentally, with irregular multiple line shapes, such as polygons, the Polyline command works like an extended Draw instruction, in that you can stick as many 'to X,Y's as you like on the end. To draw a filled polygon, use the Polygon command. For example:

```
Polyline 20,20 to 100, 100, to 80, 150 to
20,140 to 20,20
```

draws an empty polygon:

```
Polygon 20,20 to 100, 100, to 80, 150 to
20,140 to 20,20
```

draws a filled one. Easy!

BOX/BAR

If you want to draw a hollow box on screen, the easiest way to do it is to use the Box instruction. Like the Draw command, two sets of co-ordinates are used – these ones specify opposing corners of the box.

DECIMAL/HEX CONVERSION TABLE

Decimal:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Hex:	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

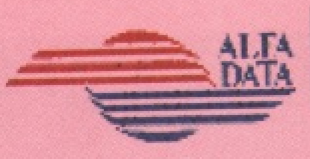
To enter hex numbers in AMOS, you need to add the prefix '$'. For example, to enter the number 15 in hex, you would type $F. In the colour index, the three digits correspond directly with the red, green and blue settings. Therefore absolute red is $F00, a medium grey is $777 and white is $FFF. Got that?

BASIC GRAPHICS

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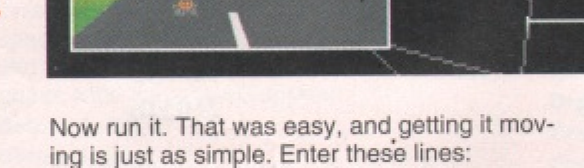
SPRITES



When was the last time you looked at the graphics in a game and thought, 'I wish I could do that'? With AMOS you can!

Attention has to be paid to the backdrop. After all, these spiders wouldn't look quite the same if placed...

...on a racetrack! See what I mean?



The Amiga is capable of displaying eight hardware sprites on screen at once. AMOS is capable of displaying up to 64 computer sprites, all kept alive and healthy by the interpreter.

You might think that such a complicated business would require a complicated set of commands, but nothing could be further from the truth. AMOS Basic uses only seven commands to create and use sprites, and then hands over to AMAL to do the rest.

AMAL is the AMOS Animation Language, and is used to create smoothly animating and moving sprites which, once set, can be left to go about their business. To show you how easy it is, we're going to load a sprite and animate it. First, load up a sprite bank – either your own or the 'Spidy.Abk' file on the coverdisk. (Go to direct mode to do this).

Now return to the Editor window, and type the commands:

```
SPRITE 8, 200,100,1
DIRECT
```



Now run it. That was easy, and getting it moving is just as simple. Enter these lines:

```
a$="Anim 8,(1,8)(2,8);"
a$=a$+"Loop:Move 320,0,100; Move -
320,0,100; Jump Loop"
AMAL 8,a$: AMAL On
```

Can you guess what the mysterious AMAL commands are? You'll have to wait until later to see if you're right.

SPRITE CONTROL

Here are all the AMOS Sprite commands, complete with syntax and examples.

SPRITE

This command simply creates a sprite and displays it on screen. The instruction is followed by four variables, namely the index number of the sprite, which can be anything between 0 and 63, the X and Y co-ordinates of the sprite and the sprite image which is to be taken from the sprite bank.

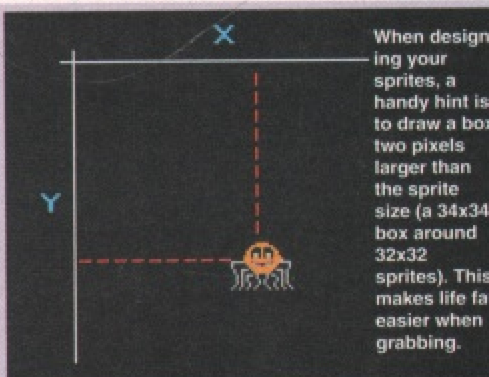
GET SPRITE PALETTE

It always happens. You have everything set, you load your sprites and when you display them...they look awful. The sprite bank holds the correct colours for the sprites, but unless stated otherwise the sprites take the palette from the current screen, which generally speaking is wrong. So, by sticking this command at the start of your program, you can correct this little problem.

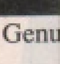
SPRITE OFF

The Sprite Off command can be used in two ways. On its own, it turns off all sprite activity and removes all sprites from the screen. However, by adding a number to the end of the instruction you can specify a sprite to disable. Try the example in Table 1 (with a sprite bank in memory).

SPRITES



When designing your sprites, a handy hint is to draw a box two pixels larger than the sprite size (a 34x34 box around 32x32 sprites). This makes life far easier when grabbing.



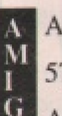





TABLE 1

```
For a=1 to 8
sprite a,a*25,100+a,1
next a
locate 0,0: Print "Enter number of sprite to disable"
Input a
sprite off a
direct
```

SPRITE UPDATE

Sprite Update is an automatic process that tries to move all sprites during a vertical blank, creating smooth movement. However, if you have a lot of sprites on screen at once, it can't handle them and you end up with some noticeably jerky movements. Use the instruction Sprite Update Off to turn off the automatic process in situations like this, and Sprite Update On to switch it back on.

X SPRITE, Y SPRITE

X Sprite and Y Sprite are used to find the X and Y co-ordinates of a nominated sprite – useful when using AMAL Movement commands which don't tell a sprite to stop moving when it reaches the edge. The X Sprite and Y Sprite commands allow you to keep a check on all sprites using the syntax:

variable=X Sprite (Sprite number)

GET SPRITE

The Get Sprite instruction does the same job as the sprite grabber in the Sprite Editor program, and allows you to take sprites directly from a screen image. If you know the co-ordinates of the images you want to grab, this is much faster. Load an IFF image to the current screen, and try these commands.

```
Get Sprite 1,200,100 to 232,132
Get Sprite 2,150,100 to 200,150
```

Now display the sprites using the Sprite command, and see which areas you've grabbed.

TABLE 2

```
Sprite 8,100,100,1
a$="Anim 0,(1,8)(2,8);"
a$=a$+"Loop:Move 150,0,10; Move
-150,0,10; Jump Loop"
Amal 8,a$: Amal on 8
do
Print "Enter a word"
Input z$
Print z$
loop
```

AMAL SYNTAX

AMAL works using string variables – sets of instructions enclosed in quotation marks. Unlike standard AMOS commands, the program doesn't correct case or spacing, so you have to be very careful when entering your AMAL strings. If you entered the program above and got the error message 'Error in animation string', check that all the commands start with a capital letter, and that the semi-colons (;) are in the correct spaces.

Once you have created your AMAL string, it has to be assigned to an available sprite with the command AMAL (sprite number),(String variable name), and then switched on with the command AMAL On.

MOVE

The most basic of all AMAL commands is the Move instruction. As you might guess, it simply moves a sprite in a certain direction relative to its current position, at a set speed. Note: The co-ordinates you specify in the instruction tell the sprite how far to go, not which co-ordinate to move to. Co-ordinates of 100, 100 will move the sprite 100 pixels to the right and 100 pixels down from its present position. The third variable denotes the number of movement steps allocated. An instruction that moves the sprite 100 pixels using 50 steps will move the sprite two pixels at a time, giving quite smooth movement. Load the sprite bank from the disk and try the example in Table 3.

TABLE 3

```
Sprite 8,100,50,1
a$="Move 100,0,50;Move 0,100,50;Move -100,0,50;Move 0,-100,50;"
Amal 8,a$:Amal on
```

KEEP ON MOVING

AMAL has been developed for those people who really don't want to be bogged down with animating and moving sprites by hand, who would rather go without than track every single attack wave in a shoot 'em up. Basically, AMAL has been developed for everyone! It allows you to set movement and animation instructions to a sprite, and then go off and do other things. Load in the 'Spidy.Abk' sprite bank, and try the program in Table 2.

ANIM

Anim animates a sprite at a set speed through a pre-determined series of frames. To tell the program how to animate, pairs of numbers need to be entered into your string to tell the program which frames to display and for how long. Load the 'Spidy.Abk' sprite bank and try the example in Table 4.



TABLE 4

```
Sprite 8,100,100,1
a$="Anim 0, (1,8)(2,8)(3,8)(4,8);"
Amal 8,a$:Amal on
```

Experiment with different speeds and orders to see how it works.

PLAY

The Play instruction tells the program to play an animation path defined in the AMAL editor. The command is followed by a number, which tells the interpreter which animation path from the AMAL memory bank to use. On the coverdisk is an AMAL bank called 'Fly.Abk'. Load this from direct mode, and view the various flight patterns using the Play instruction.

AMAL ON, OFF, FREEZE

These three instructions cause all AMAL paths to start, stop, or pause until started again unless a specific sprite number is included. Enter the program in Table 5 and use the keys 1 to 4 to pause and restart the spiders.

TABLE 5

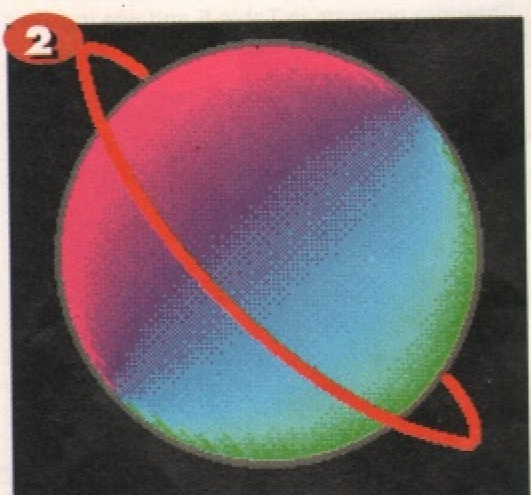
```
Global a1,a2,a3,a4,x$, a$
Sprite 8,100,50,1
Sprite 9,140,50,1
Sprite 10,180,50,1
Sprite 11,240,50,1
a$="Anim 0, (1,8)(2,8);"
a$=a$+"Loop: Move 0,100,50; Move 0, -100,
50; Jump Loop;"
Amal 8, a$
Amal 9, a$
Amal 10, a$
Amal 11, a$
a1=0:a2=0:a3=0:a4=0
amal on
do
x=0
x$=inkey$
if x$<>"" Then PSE
Loop
Procedure PSE
if x$="1" and a1=0 then Amal Freeze 8: a1=1:
Goto RTURN
if x$="1" and a1=1 then Amal On 8: a1=0
if x$="2" and a2=0 then Amal Freeze 9: a2=1:
Goto RTURN
if x$="2" and a2=1 then Amal On 9: a2=0
if x$="3" and a3=0 then Amal Freeze 10:
a3=1: Goto RTURN
if x$="3" and a3=1 then Amal On 10: a3=0
if x$="4" and a4=0 then Amal Freeze 11:
a4=1: Goto RTURN
if x$="4" and a4=1 then Amal On 11: a4=0
RTURN:
End Proc
```



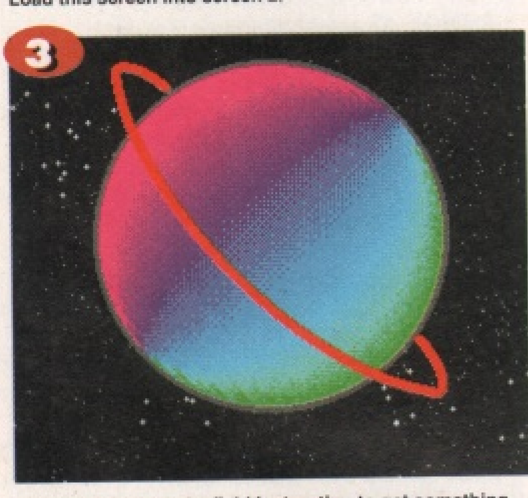
SCREENS



Load this screen into screen 1.



Load this screen into screen 2.



Now use the dual playfield instruction to get something that looks like this! By scrolling screen 1 slightly faster than screen 2, you get a parallax effect.

The Amiga's multiple screen modes make it a very versatile machine. However, Intuition – the software that controls the Workbench interface – is a pain to work with. AMOS screen control, on the other hand, makes light work of scrolling, flipping, animating, windows and a whole host of other functions.

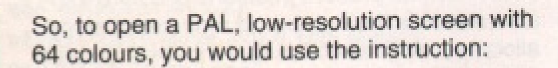
Before you can display any graphics, text or other images, a screen has to be defined and displayed. When you first run it, AMOS has already done this for you, opening a 320x200 low-resolution screen, but what happens when you want more, such as a PAL display, HAM colours or high resolution? Simple – you create a new screen!

SCREEN OPEN, CLOSE

The Screen Open command defines a new screen and brings it to the front of the stack, making it the one currently displayed and written to. To open a screen, use the format:

```
Screen Open (Screen Number), (Width), (Height), (Colours), (Resolution)
```

So, to open a PAL, low-resolution screen with 64 colours, you would use the instruction:



```
Screen Open 1, 320, 256, 64, Lowres
```

To open the same size screen in high resolution mode with 16 colours, you would enter:

```
Screen Open 1, 320, 256, 16, Hires
```

To close any screen, use the Screen Close instruction. This can be followed by a number, which denotes the screen to close, or closes the current window if left without.

SCREEN DISPLAY

With the Screen Display instruction, you can position your screen wherever you like on the monitor display, letting you create interesting 'bouncing screen' demos. The command is followed by five variables, which mark the screen number, the x position, the y position, the width of screen shown and height of screen shown respectively. See Table 1.

TABLE 1

```
Screen Open 1, 320,200,32,Lowres
For c=1 to 100
x1=rnd(300):y1=rnd(200):Ink rnd(32)
Bar x1,y1 to x1+50,y1+50
Next c
For c=90 to 150
 Screen display 1, C,,,,
 Wait Vbl
Next c
```



SCREEN OFFSET

The Screen Offset instruction lets you do all sorts of clever scrolling. It works by displaying the current screen from a specific point – but not necessarily the top left corner. This instruction works best if you have an extra large screen, and can be used to great effect. Try the routine in Table 2.

See how easy it is to smoothly scroll a screen? In case you aren't sure, the program is displaying the screen from X-position 'X', and reads the joystick in an endless loop. As the joystick is moved, 'X' is increased or decreased, and the screen is redisplayed.

Once you've got your screens up and running, there's a lot you can do with them without actually doing much at all. These screen effects contain most of the features and functions used in commercial games, but with none of the fuss.

DUAL PLAYFIELD

Parallax scrolling can really add something to your games, and the easiest way to create it is to use the Dual Playfield (screen one), (screen

SCREENS



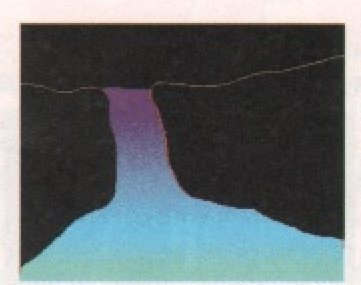
TABLE 2

```
Screen Open 1, 960,200,16,Lowres
For c=1 to 200
 X1=rnd(960):y1=rnd(200):Ink rnd (15)
 Bar x1,y1 to x1+rnd(50)+1,
y1+rnd(50)+1
Next C
x=0
Do
 Screen offset 1,x,0
 If Jleft(1) and x>1 then x=x-1
 If Jright(1) and x<640 then x=x+1
 If Fire(1) then Direct
 Wait Vbl
Loop
```

two) instruction. This takes two previously defined screens of the same resolution and overlays them, using the transparent colour (generally 0) to see through the top screen. The first screen is usually the one on top, but you can switch them around using the Dual Priority instruction. See the example given in Table 3.

TABLE 3

```
Screen Open 1, 540,200,16, Lowres
Screen Open 2, 640,200,16, Lowres
Screen 1
For A=1 to 501 Step 50
 Bar a,0 to a+25, 200
Next A
Screen 2
For a=1 to 601 Step 25
 Ink Rnd(16)
 Bar a,0 to a+10,20: Bar a,180 to
a+10,200
Next A
Dual Playfield 2,1
x1=0:x2=0
Do
 Screen Offset 1,x1,0
 Screen Offset 2,x2,0
 If Jright(1) and x1<250 and x2<500
then x1=x1+1:x2=x2+2
 If Jleft(1) and x1>0 and x2>0 then
x1=x1-1:x2=x2-2
 If fire(1) then Direct
 Wait Vbl
Loop
```



Using the Shift Up instruction, animate this waterfall. Why not try some of your own!

SCREEN COPY

The Screen Copy command is the easiest way to duplicate an area of a screen and transfer it to another screen, or another area of the same screen. The format used is:

```
Screen Copy (Screen Number), X1,Y1,X2,Y2
To (Screen Number), x3,y3
```

X1,Y1,X2,Y2 describe the rectangular area of the screen to be copied, and X3,Y3 mark the position where the top, left corner of the block will be pasted. Load the 'Copydemo' file from the coverdisk, go to direct mode, and try these examples.

```
Screen Copy 1,0,0,160,100 to 1,161,0
Screen Copy 1,0,0,320,100 to 1,0,101
```

APPEAR

This instruction lets you move smoothly between two pictures in a variety of ways – perfect for clearing the intro screen of a game! The instruction works by first identifying the source and destination screens, and then the effect, which can vary from one to the total number of pixels in your screen. Try the example in Table 4.

TABLE 4

```
Screen open 1, 320,256, 32,Lowres
Load IFF "(Your screen)",1
Screen open 2, 320,256,32,Lowres
Load IFF "(Your Screen)",2
Appear 2 to 1,81920
Wait 200
Direct
```

FADE

The Fade command can be used in a variety of ways. In its most basic use, it fades all the colour registers to 0 (black) at a set speed, as in:

```
Fade 15
```

Or you can use it to change the colour registers to a new palette, as in:

```
Fade 15, $1,$2,$3,$4
```

Finally you can Fade the colours to a palette taken from another screen. Load two IFF files, and enter:

```
Fade 15 to 1
```

If you have screen 2 displayed, this will change the palette to that of screen 1.

SHIFT UP, DOWN

Colour cycling can be used to great effect, as anyone who has ever messed about with *Deluxe Paint* will tell you. Shift Up moves the colours in a certain range up a step at a time through that range, and Shift Down does the opposite. The last number in the instruction tells the interpreter what to do with the end colour in the range. Try this program:

```
Load Iff "Waterfall",1
Shift Up 10,5,10,1
Direct
```

See how impressive it can be?

PAINT THE WHOLE WORLD...

Copper rainbows are commonly used to create complex colour backdrops to games, allowing you to have far more colours on screen than you have in your palette. The instruction is laid out like this:

```
Set Rainbow number, colour, length, red,
green, blue
```

The number of your rainbow can be between 0 and 4. Colour is the colour index the rainbow will be based on. The length is the size of the table used to store your colour, ranging between 16 and 65500. The Red, Green and Blue indexes tell the program how to alter the basic colour index. The information for these is held in brackets, using the format (Number Of Lines, Amount to be added in a single step, Number of times to repeat the operation). See table 5.

TABLE 5

```
Set Rainbow
0,1,64,"(8,2,8)","(8,1,8)",""
Rainbow 0,56,1,255
Wait Key
```

Notice how the Rainbow instruction is needed to display your set Rainbow. The syntax for this instruction is:

```
RAINBOW Number, first colour, vertical position, height.
```

SOUND

How good would your favourite game be without sound effects or music? Think about it – the sound really sets the atmosphere so you'd best get familiar with AMOS's set of sonic commands.

There are essentially two forms of sound in AMOS – samples and music. Each of these are held in their own designated memory banks and can be played across any sound channel. Samples are exactly that – raw sound that can be played at a requested rate. Music, however, is AMOS's version of a tracker module. All sounds and patterns are saved as one block, and accessed using a single command. Unfortunately, AMOS can only read AMOS music files, so you can't play your favourite tracker modules directly, but you can covert them to AMOS music files using a handy utility (see panel).

BELL, BOOM, SHOOT

AMOS has three sounds in memory at all times – a bell, a gunshot and an explosion effect. These are played using the commands Bell, Shoot and Boom respectively. Try the example in Table 1.

TABLE 1

```
For A=1 to 5
  Bell: Wait 5
Next A
For A=1 to 50
  Shoot: Wait 5
Next A
Boom: Wait 5: Boom
```

OK, so they may not be the most incredible effects that you have ever heard, but they'll certainly do until you start bringing in your own sounds.

SAM PLAY

Provided you have a sample bank in memory, you can play any of the sounds within it with the Sam Play command. The command is followed by three variables, the first is the number of the sample to play, the second is the sound channel it is to be played through (0 to 3), and the third is the playback rate.

SAM BANK

It's possible to hold more than one sample bank in memory at a time, and this command switches between them. To use it, simply type the command, followed by the number of the bank you want to switch to. If you aren't sure of the bank numbers, go to direct mode by pressing escape and type Listbank.

SAM LOOP

This command turns all samples into looping ones. To enable it, type SAM LOOP ON. To disable it again, type SAM LOOP OFF.

MUSIC

To play AMOS music files, you merely need to type the word Music followed by the number of the piece you want to hear. A music file can contain numerous pieces of music – one for each level of your game if you want – so including the number is vital. Without it, the command will play the first piece of music it comes across.

MUSIC OFF

Stops all music pronto. If you have more than one piece playing, and you only want to stop one track, then use the Music Stop command.

TEMPO

The Tempo command is used to alter the speed of any piece of AMOS music. The command is followed by a number which dictates the new tempo – the higher the number, the faster the music is played.

MVOLUME

Mvolume is short for Music Volume, and that's precisely what it is used to set. Ranging from 0 to 63, the command changes the volume of the entire piece, not just single tracks, but used with a loop can create some useful music and sound effects. Load the demo tune (spidy.abk) on this month's coverdisk and try the listing in Table 2.

TABLE 2

```
Load Iff "Title",1
Music
Wait Key
Fade 15
For a=63 to 0 step -2
Mvolume A
wait 5
next a
```

Professional looking, isn't it? That is exactly how easy it is to combine sound and graphics for stunning looking presentations, opening your AMOS world to more than just games.

HOW TO MAKE A SAMPLE BANK

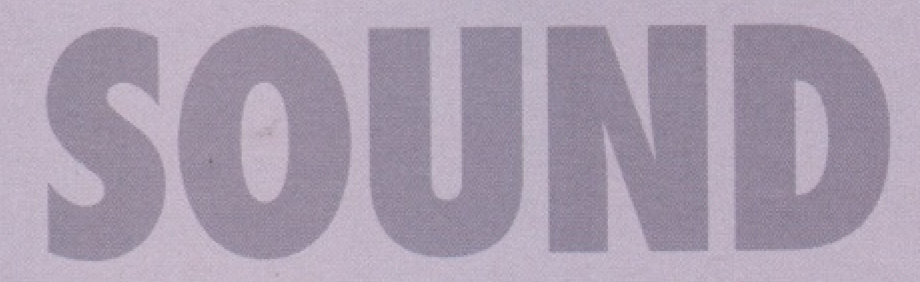
To make a sample bank, you need to load the 'Sample Bank Maker' program on your AMOS Program disk and run it. You'll be shown a black screen with a menu bar. Using the right mouse button, select the 'Load Sample' option, and a file requester appears.

Insert your disk of samples, and select the first one you want to include in the bank. The program will ask you for the sampling rate and then store it in memory. The sample will now be loaded and listed at the top of the screen. Repeat the process as many times as memory allows (watch the 'Memory Spare' indicator). Now just select the 'Save Bank' option from the menu, and the program does the rest.

HOW TO USE A TRACKER MODULE

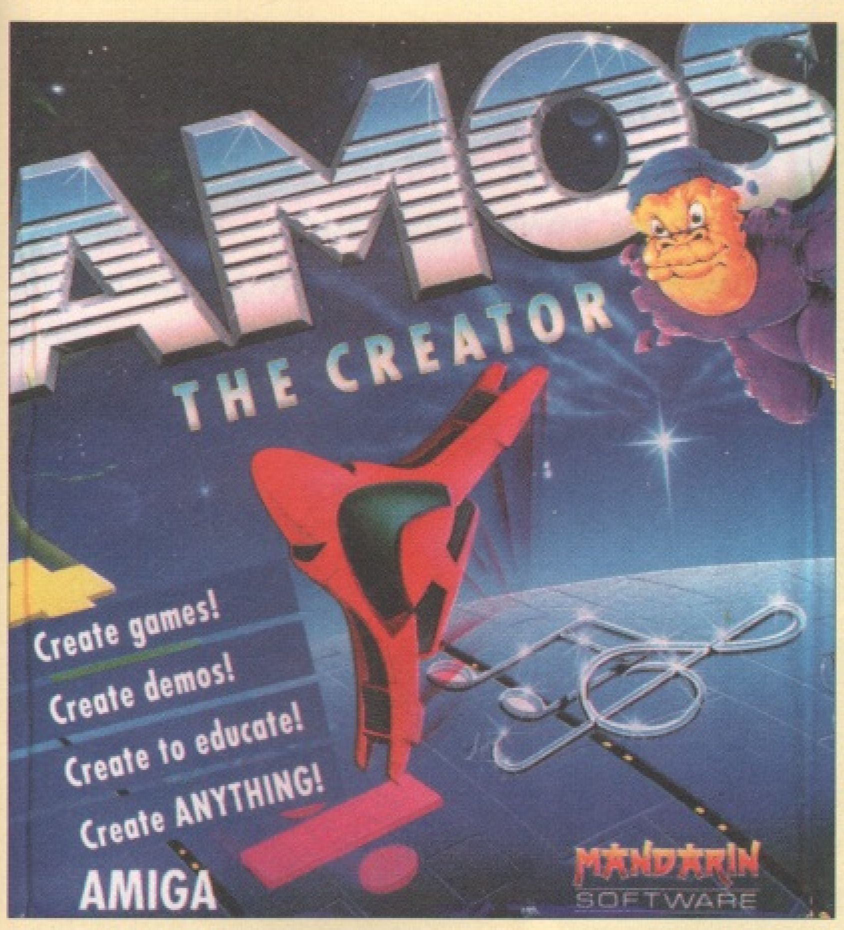
Before AMOS can play a tracker module (Noisetracker, Soundtracker etc), it needs to be converted to a format which AMOS understands – AMOS Music. This couldn't be easier if it was done for you. On your AMOS Program disk, you'll find a file called 'Soundtracker 2.1'.

Load this and run it, and a file requester will ask you for your tracker module. Insert the disk with the module on it, and select it. The rest is done for you – all you have to do is specify a file name. To load the new file, go to direct mode and type 'Load "(Filename).Abk"', and the file will automatically be loaded into memory.



SPECIAL OFFER

AMOS AND AMOS COMPILER DOCUMENTATION SET





Get the most from your free AMOS and Compiler with the official user documentation.

You've marvelled at the power and speed of AMOS and AMOS Compiler. You've tinkered with the demo programs, and maybe even created a few little routines of your own, but what now? If you really want to get the best from this stunning package, there's no substitute for the official instruction manuals.

For starters, the AMOS manual explains in simple terms how the system works. As well as this, every command is listed in detail, with clear examples and descriptions of each to get you up and running within minutes. Extensive technical appendices are also included for detailed information on the more obscure points.

Once you've got to grips with the basic AMOS language, you'll probably want to get things running even faster with the Compiler. The Compiler is available fully packaged, giving you a home for your disks and full instructions in one hit!

To complete your AMOS set, fill in the coupon below (or telephone your order on 0625 859333 quoting reference CU Amiga), indicating whether you require the AMOS manual, the Compiler manual and box, or both. The AMOS manual and Compiler set are each priced at £14.99. Cheques should be made payable to Europress Software Ltd. Alternatively, quote your Access/Visa card number, and the amount will be debited from your account.

NAME..

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PLEASE SEND ME:

- ❑ **1 AMOS manual @ £14.99**
- ❑ **1 AMOS Compiler manual with box @ £14.99**
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AMOS COMPILER

You know already that you're fortunate enough to have the AMOS Compiler thrown in with your free copy of AMOS, but do you know how to get the best out of it?

For your Amiga to run an AMOS program, it has to run it first through the AMOS interpreter, which converts it into machine code, and then into the processor. This procedurel takes time, which is where pure machine code programs have the edge. Or do they?

The AMOS Compiler is a handy accessory that takes your (sometimes) plodding AMOS files and converts them into pure machine code. The practical upshots of this are (a) it runs directly from disk, with no need to load the AMOS program and (b) with all conversion already done, the programs are vastly accelerated. Typically, compiled programs run at twice the speed of their BASIC counterparts.

How do you take advantage of this fabulous aid in your quest to get a game onto the shelves? The simplest way is to load the Compiler program from your main AMOS disk and compile from there, but there are other ways. The easiest is to compile from direct mode. Press escape to enter direct mode, and enter the compile command using this syntax:

```
Compile "(Program name) -(disks) -(type)"
```

The (disks) and (type) refer to the way the program is compiled and the type of file created. The complete list of settings is:

DISKS

- D00: Compiles from Ram Disk to Ram Disk. The fastest way to compile.
- D01: Compiles from Ram Disk to floppy disk.
- D10: Compiles from disk to RAM. It's fast, but it uses a lot of memory.
- D11: Compiles from floppy to floppy. Very slow, but only holds 70K of memory.

TYPES

- T0: Creates a Workbench friendly, stand-alone file complete with icon.
- T1: Creates a CLI-friendly program, executable from the CLI.
- T2: Not the film, a CLI program that can run in the background using Amiga multi-tasking.
- T3: Creates a compiled AMOS program that has to be run from within AMOS.

So, to compile a program completely in RAM that can run as a CLI multitasking program, you would enter:

```
Compile "(Program name) -D00 -T2"
```

After that, just follow the on-screen prompts.

OTHER OPTIONS

There are a couple of other lines you can add to your Compile command, which give you more control over how the program will run when loaded independently. The first sets the default opening screen.

You'll find that AMOS compiled programs automatically open Screen 0 on loading, before running your program, which can cause a nasty flash. To get rid of this, use the extender -S0 in your instruction.

You can also choose to keep the Workbench or CLI screen intact while your AMOS program sets itself up if you wish to, which will have the effect of making everything look far more professional.

To keep the Workbench screen up, use the extender -W1. Remember to put the line 'AMOS To Front' when your program is ready to display itself. Try the example in Table 1 on the left, compiling it as:

```
Compile "Test.AMOS -D01 -T2 -S0 -W1"
```

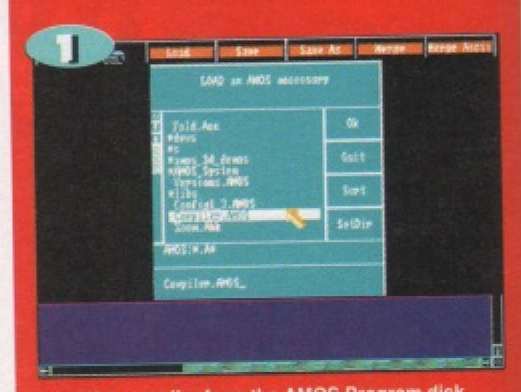
TABLE 1

```
Screen Open 0,320,250,64,Lowres
For C=0 To 100
  Ink
Rnd(64):X1=Rnd(320):X2=Rnd(320):Y1=Rnd(200):
Y2=Rnd(200)  Bar (x1,y1) to (x2,y2)
Next C
AMOS To Front
Wait Key
```

COMPILER

HOW TO COMPILE

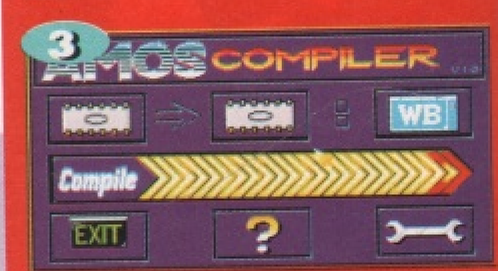
For those who don't really feel like messing about with extenders and CLI-style commands, the Compiler.AMOS program on your AMOS program disk provides a useful alternative. Without any programming knowledge, you can compile your programs into full machine code files faster than it takes to read this box! Here, in three easy stages, is the hassle-free compiling experience.



Load the compiler from the AMOS Program disk using the 'Load Others' option from the menu bar, and then click on 'Run Others'. Select the Compiler from the file selector and you'll be greeted with this menu screen. Here you select how the file is compiled, and what hardware is used. Along the top of the screen you'll see three icons. These represent the From, To and Type selectors. Click on each a couple of times to see how you can change the from and to between Ram and floppy disk. The Type icon allows you to choose a WB compatible file, a CLI multitasking compatible file or an AMOS file. Choose the set-up that suits you, and click on the 'Compile' button.



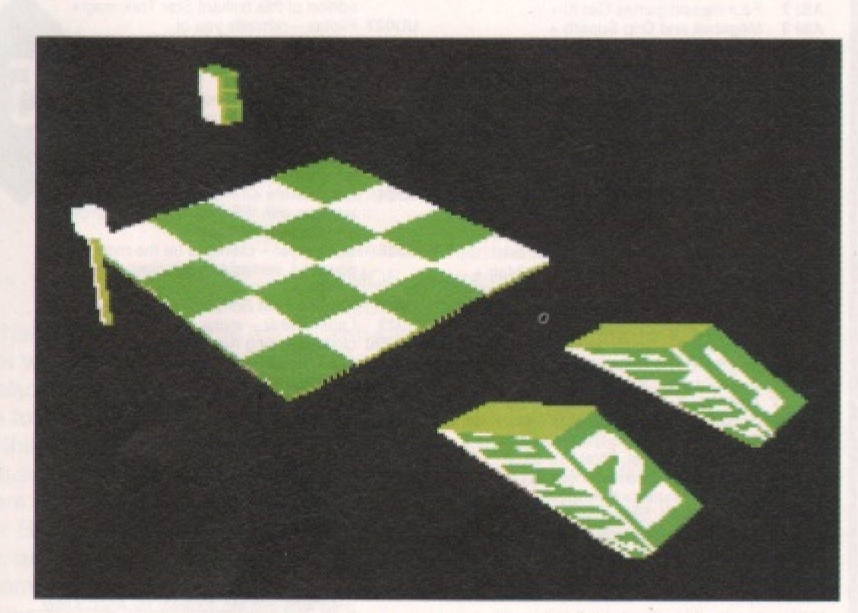
The first of two file selectors appears. Select the .AMOS file you want to compile, click on 'OK', and type the name you want the compiled file to be saved under. This file doesn't need to have an AMOS extender.



Now all you can do is wait, as the yellow bar fills up. After a few seconds, you'll be informed that all is done, and you can then load your compiled file and marvel at the speed.

WHERE TO NOW?

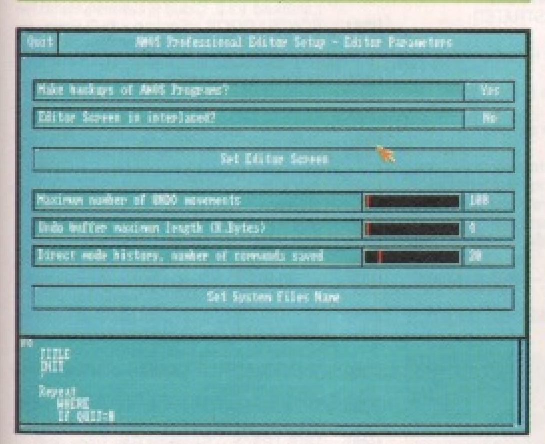
You think you've seen all that AMOS has to offer? You ain't seen nothing yet! This is just the beginning – your first steps into an exciting new world. Just check out what AMOS has to offer you!



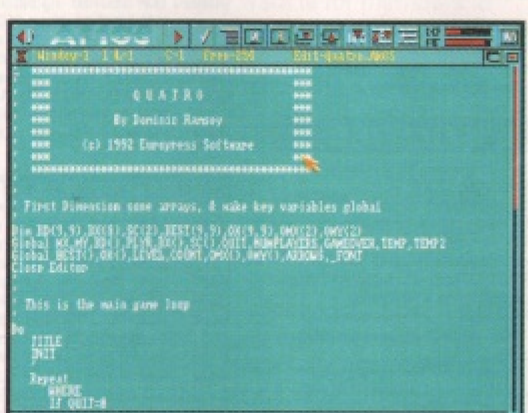
AMOS 3D lets you create anything from a business demonstration to a flight sim, using 30 new commands.

UPDATES

AMOS 1.35 is far different from the original version. Europress have made a point of sporadically releasing update disks for the system, comprising of new commands, friendlier accessories and more programming power than François Lionet ever imagined. The best thing about them, though, is that they are free! When one is available, it is instantly released to all PD libraries, not just the AMOS PDL, as well as on bulletin boards and available direct from Europress. At the moment, we're up to v1.35 – A1200 compatibility, but already we've seen improvements such as sprite flipping, full control over multi-tasking and an AMOS assembler! Roll on version 1.36!



These update disks can be found in any PD library, making your copy of AMOS more and more powerful.



AMOS Pro is the big brother to AMOS, giving you over 750 commands and a whole host of new features. Well worth looking into.

AMOS PRO

If the regular updates aren't enough for you, then why not fork out for a copy of *AMOS Pro* – this is not so much a game creator, more of a product development kit. With over 750 commands, a full debugging suite, innovative WIMP driven user interface, and with a new update disk, which is compatible with AMOS 3D and the AMOS Compiler, you can't go far wrong.

Price: £69.99 From: Europress Software. Tel: 0625 859333

AMOS 3D

Any programmer will tell you that working with 3D polygon graphics can be a nightmare. Any programmer who hasn't used *AMOS 3D*, that is. This extension to your AMOS interpreter lets you create and manipulate 3D objects as simply as moving a sprite, and that isn't all. The 3D Object Modeller lets you build objects in a way that *3D Construction Kit* could only dream of, allowing you to texture map surface detail onto the polygons, and then load them into AMOS and shift them around any way you like using 30 new commands. In BASIC, the graphics are fast enough, but compile them, and you've got speeds to rival commercial software!

Price: £34.99. From: Europress Software. Tel: 0625 859333.

MAKE SOME MONEY!

Europress used to have a rule that any commercial software written in AMOS had to credit it, as well as display the AMOS logo within the game and on the packaging. As a result a lot of commercial publishers simply wouldn't take software written in AMOS. Not any more. Now, no mention need be made of your back-door into quality software writing. All Europress ask is that you notify them of the release beforehand and send them a copy of the finished game when it's released. Europress Software reserve the right to release the information after two months shelflife.

AMOS

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ASI 24 Revenge DuxCroak 3d maze +
ASI 25 Another mega collection – Buy it! +
ASI 26 SuperPacMan 92 Smash TV Ashido +
ASI 27 Addictive card games – Very good! +
ASI 28 Doody/DrMario/Invaders2/Madbomber2 +
ASI 29 DOG/Rome/Nova/B-Bal/Atax/Quadrix +
ASI 30 Bounce and Blast, Total Fire etc +
ENT + 1 Klondyke, Hball and more +
ENT + 2 Zerg BounceNbob Frogger +
ENT + 3 SpaceWars, Squamble and more +
ENT + 4 Zon Hanoi Yelp and more +

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- The clip art in this collection is v.high quality
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- Each disk autoboots as a slideshow allowing you to view the entire bitmap by moving the mouse

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ART44 American woodcuts +
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ART46 Farm woodcuts +
ART47 Mixed animal woodcuts +
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ART49 More animals +
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ART51 Botanical line art +
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U325 Label Maker – make your own labels
UU030 Understanding Amos – tutorial +
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U531 Powerbase v3.2 – powerful and user-friendly database +
U535 Wordpower v1.3 – spell checking, crosswords, anagram solving +
U514 PC Emulator – runs most pc business software +
U385 Plus! (13 disks) – 13 disks crammed with programs info etc. Entirely for A500/A600 users +
UU032 TDH Vol 1 – Amos users magazine +
U306 Strictly PD essential collection (4 disks) packed with utilities, gaems, music creators and printer utilities +

75p

USEFUL UTILITIES

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UU002 CLI TUTORIAL – Learn all about the CLI. Given 70% rating in this magazine. +
UU003 MESSYSID V2 – Reads and writes P.C. disks.Given magazine rating of 95%. +
UU004 POOLS PREDICTOR – Increase your chances of becoming a millionaire. +
UU005 DISK OPTIMISER – Brilliantly simple! Any disk loads up to 15 times faster. Mag rating of 93%. +
UU006 A 500 PLUS EMULATOR – Emulate the Amiga Plus on your 1.3 Amiga. (IMG Req).
UU007 FREECOPY V1.1 – Removes password protection to allow copying. +
UU008 CURSOR V1.0 – Compiler for Amiga Basic programmes. +
UU009 BROWSER II – An alternative to SID. Some may find it easier and better. +
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U299 SLIDESHOW MAKER – Shows how to present slideshows in different ways. +
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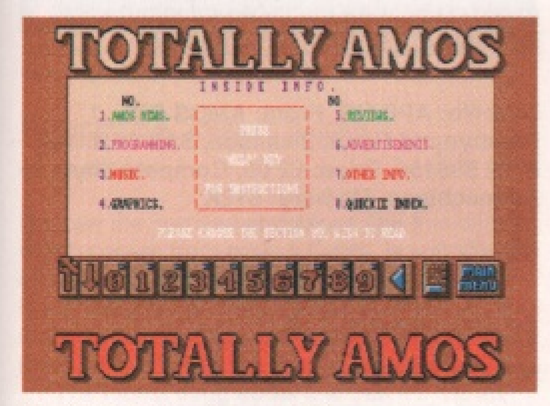


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TOTALLY AMOS

When you start using AMOS, you're doing more than just using a programming language. Before you know it, you could find yourself with a new circle of friends!



The *Totally AMOS* main menu. Options can be selected with the keyboard or by clicking on the numbers with the mouse.

Tutorials like this one are all well and good, but what happens when you come across a problem that you just can't solve? This booklet doesn't cover everything AMOS has to offer, and unfortunately neither does the manual. Basically, beginners can get a really hard time of it, but where can they turn for help?

To the husband and wife team of Len and Anne Tucker, that's where. These two have offered strong support for AMOS right from the very start, with Anne heading up the AMOS PD Library and Len offering technical support, as well as writing educational software such as Europress's *Spelling Fair* and Jumping Bean's *Noddy's Playtime*. Eighteen months ago, they put together the first issue of *Totally AMOS*, the disk magazine for the beginner.

'We saw a need for some sort of set-up to help the complete novice,' Len explains. 'We looked around at the time, and couldn't find anything that was subject specific. Everything seemed to assume that people knew what a For Next loop was, or what a While Wend was. We set up *Totally AMOS* to help people who needed it. Write to us, and we'll do a tutorial on it, that sort of thing. Another aim behind *Totally AMOS* was to set up connections between programmers and artists, artists and musicians and so on. Both things were what we saw was needed, and we tried to create this environment – something like a beginners' club. What we really want is for members to feed off each other's knowledge.'

For the record, the entire thing was Anne's idea, and consequently she does most of the work in terms of putting the magazine together. Len is mainly responsible for the magazine driver, which is being continually enhanced. But before I go any further, let's take a look at the product itself.

Totally AMOS works from an interactive menu and displays text pages and illustrations at your command – a cross between Multimedia and teletext in that sense. Everything is controlled from the mouse or numeric keys, so there's no confusion from the start. But that isn't going to sell it.

What will, though, is the editorial content. Broken into 10 main sections, each broken down further, the disk contains reviews of AMOS PD and AMOS support titles, comprehensive news and letters pages, a debating corner – where readers can slag each other and the editorial team off as much as they want – and, of course, the help pages.

Help comes in two different ways. The first is from a Question and Answer session, where the smallest and simplest problems are solved. Other help comes in the form of complete tutorials, covering all aspects of a problem. Subjects covered in tutorials in past issues include AMOS 3D, How To Get The Most Out Of The AMOS Compiler, AMAL and a guide to the AMOS commands not mentioned in the manual.

One other feature is a spotlight on leading AMOS programmers – those who have created the most impressive public domain software and routines. If there's no other reason to work hard at your coding, the promise of an interview feature must be enough to entice most to submit work.

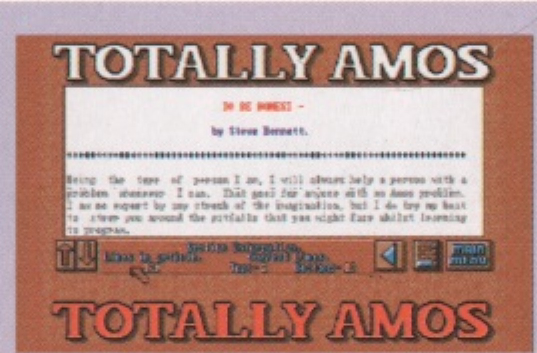
At the moment, *Totally AMOS* sells around 150 copies, but that looks set to change thanks to a new distribution deal that will see the magazine on sale in Canada and the USA, and then Australia.

Totally AMOS costs £2.50 per issue, and back issues cost £3.00 each. If you subscribe, you become eligible for a 10 per cent discount on all disks from the AMOS PDL. If you want to try it out, there is a PD issue available from the AMOS PDL for £2.00. Whatever space on the disk isn't taken up with the magazine is filled with useful routines and programs, making it a serious bargain. For more information, contact Len or Anne on (0792) 588156.

AMOS IN ACTION

As well as running the AMOS PDL, writing *Totally AMOS* and various educational packages, Len and Anne are also responsible for a new AMOS book simply titled AMOS In Action. The book is essentially a guide on how to write an arcade game in AMOS Basic, taking you from the sort of set-up you really need to write a game, right up to completing the project. A disk is included, containing a complete version of the demonstration game in question – Marvin The Martian – and costs a mere £12.95. If you buy it from the AMOS PD Library, it costs an even merer £10.35. For more information, call Len or Anne on (0792) 588156.

TOTALLY AMOS



Just one of the many Help pages, to get you out of those sticky situations.

AMOS PUBLIC DOMAIN

So what exactly can be done with AMOS? One place to start looking is in the various public domain libraries, where dozens of disks containing AMOS programs and routines can be found.

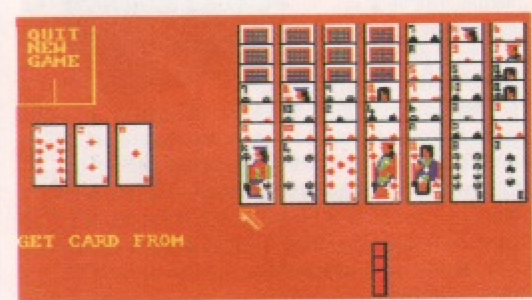
CARD GAMES 2
game

Everyone has those moments when you want to do nothing other than sit down with a pack of cards, and deal a quick hand of Patience. Or at least David Lorner seems to think so, or he wouldn't have come up with *Card Games 2*, a collection of nine different Patience variants. Being on your own needn't be a chore any more!

In case you're not the kind of person who enjoys spending long evenings alone, Patience is a card game for one. Generally it involves a number of card stacks, which have to be rearranged using a series of set rules to reach a certain position – four rows of ascending cards of individual suits, for example.

On the whole the game isn't particularly taxing – it depends on the luck of the deal more than anything else – but it does while away the time.

All nine games are accessed from a single menu screen, and to be honest there isn't a great deal of difference between them. Each game is displayed on the same blank backdrop with the same set of cards and an identical control method involving two clicks with the left mouse button – one to pick up a card and another to put it down again. The presentation isn't much, but it's such a great version that I haven't any time left to write this article!



For those moments when you have nothing to do – AMOS Patience!

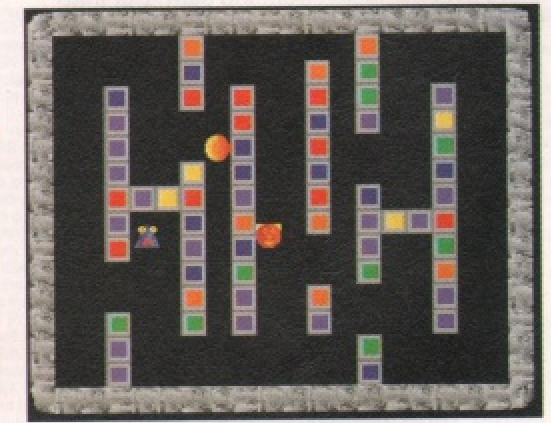
Disk No: APD448. From: AMOS PDL, 1 Penmynydd Road, Swansea, SA5 7EH. Tel: 0792 588156. Price: £2.00. Compatibility: All machines. Memory: 512K



FOOTBALL/SPEEDY REEDY
game

Football is possibly the most pointless management game around, and that's what's so great about it. Take something like *Tracksuit Manager*, remove all traces of management so that all you have left is the results screen, and you've got *Football.* It sounds like a strange idea, but you do find yourself clicking through the screens just to see who wins the league. No playability or gameplay, but fun.

Speedy Reedy, however, is playable. Playable and a lot of fun. In this *PacMan*-style maze game, the aim is to eat the power pills as they appear while staying out of the clutches of the evil ghost. It's all rather unfair, as the ghost can float through walls and you can't, but help is at hand. Collect a speed-up, and you can race all over the shop without fear of being caught. Superb samples and music really make the game stand out – they just have to be heard to be believed.


It might look like PacMan, but that's where the resemblance ends with SpeedyReedy.

Disk No: APD462. From: AMOS PDL, 1 Penmynydd Road, Swansea, SA5 7EH. Tel: 0792 588156. Price: £2.00. Compatibility: All machines. Memory: 512K



U-TILITIES
utilities

Just to show that AMOS isn't solely for making games, Tony Swanwick's dynamic duo of applications far outclass a lot of the more commercial PD utilities around. The first program, *U-File*, is a fully comprehensive file editor, allowing you to load individual files from disk and tailor them to your own desires. If you would rather have your name than Mike Singleton's on the title screen of *Midwinter 2*, then this is the gizmo to do it with. To be used carefully.

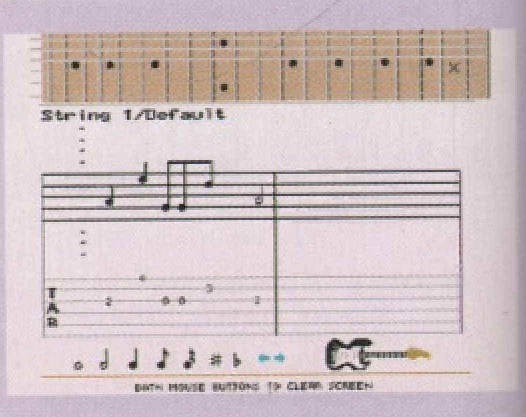
The other program, *U-Zone*, is an AMOS help application that lets you define screen zones for an IFF graphic. Anyone who has created a menu screen, and then spent hours trying to get the positioning of the buttons pixel perfect will know how much of a struggle it can be. This package is dedicated to you. Thanks to a few icons and some very well-written code, you'll be able to define every screen zone as easily as drawing a box on *DeluxePaint.* A must for all AMOS owners.

Disk no: APD454. From: AMOS PDL, 1 Penmynydd Road, Penlan, Swansea, SA5 7EH. Tel: 0792 588156 Price: £2.00. Compatibility: All machines. Memory: 512K.



AMOS

U-Zone is a godsend for people who like using buttons, but don't like making them!



A bit late for Valentine's Day, but fast nonetheless. A shot from *Digital Orgasm*.

DIGITAL ORGASM
demo

Despite the somewhat dubious title this demo, which comes from coders Cubic, is suitable for all the family and serves to prove that AMOS is just as good at creating light sourced vector objects and dot flags as most other programming utilities are.

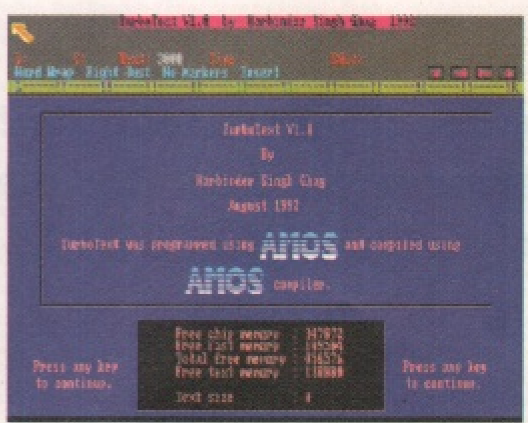
The nicest thing about it is that it's the latest in a long line of demos flying back and forth in a friendly competition between Cubic and coding rivals Fanatix, and they just get better and better. Every time one team comes up with something new, the other has to reply by doing the same thing, only bigger, better and faster.

If you are a collector of megademos, then you probably won't find much to impress you here. After all, machine code routines will always be faster than AMOS, but if you take into account that these routines are written in a version of BASIC, you can't help but be impressed.

All in all, though, this isn't a very entertaining demo. I would have liked to have seen a lot more visual effects and a lot less text on the screen, or even some more entertaining text. Still, it shows what AMOS is capable of so far.

Disk no: APD456. From: AMOS PDL, 1 Penmynydd Road, Penlan, Swansea, SA5 7EH. Tel: 0792 588156 Price: £2.00. Compatibility: All machines. Memory: 512K.





Turbo Text is an excellent word processor – and a snip at £2.00!

TURBO TEXT
text editor

The mysteriously named Harbinder Ghag is responsible for this handy AMOS word processor. The screen layout is more or less the same as most others (ruler bar at the top of the screen, most options selected from a menu bar) but that's where most of the similarity ends.

All the usual options are included, such as loading and saving ASCII files (which makes this perfect for writing your AMOS routines on), and various formatting controls – which are, incidentally, perfectly arranged. They do exactly what you would expect, unlike many PD word processors, which seem to have more than a few unpredictable results. On top of these are a few options not normally seen. For a start, you can set the word processor to read your text as you type. Unfortunately it uses the Amiga speech synthesis which everyone knows is about as decipherable as the old Spectrum Currah Speech unit, but it works well in allowing you to keep your eyes off the screen if you should so desire. You can also get the program to read the entire document back to you, which gives you an excellent way of looking over what you've written if you don't like reading your own work.

Disk no: GPD145. From: AMOS PDL, 1 Penmynydd Road, Penlan, Swansea, SA5 7EH. Tel: 0792 588156 Price: £2.00. Compatibility: A500, A500+, A600. Memory: 512K.





A must for any guitar player, Tab Master will solve those Tabulature blues and let you get back to playing them instead.

TAB MASTER/HECTIC 2/DEAR DIARY
miscellaneous

There are three cool programs written by one David Meager included on this disk. He may be only 14 years of age, but he's already creating professional looking software! *Tab Master* is a must for any guitar owner, allowing you to enter musical notation on a stave, which is then converted into guitar tabulature instantly and, if you want, is marked out on a fretboard. No more messing around with mnemonics for me. Next time I want to transcribe Mendelssohn, I'll just use this.

Alongside it on the disk is *Hectic 2*, an interesting tile-based puzzle game which involves picking up numbered tiles to get the highest score possible. Some tiles take points off your score, and some add to it.

This might seem a little on the easy side, but when you add to that the fact that the first player can only move the cursor horizontally on the board and the second player can only move it vertically, you realise that you've actually got yourself a real challenge.

The diary program, which is simply titled *Dear Diary*, is really nothing to write home about I'm afraid, but when put on a disk with two great programs like these, you can't really complain.

Disk no: GPD180. From: AMOS PDL, 1 Penmynydd Road, Penlan, Swansea, SA5 7EH. Tel: 0792 588156 Price: £2.00. Compatibility: All machined. Memory: 512K



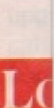
PUBLIC DOMAIN

AMOS USER GROUPS

Being an AMOS user can boost your social life! This is the claim we make based on the sheer number of AMOS User groups there are in Europe alone. Here's a complete list of who to write to.







AMOS User Club UK
Aaron Fothergill
1 Lower Moor
Whiddon Valley
Barnstaple
North Devon
EX32 8NW

AMOS Programmer's Exchange
7 Majestic Road
Hatch Warren
Basingstoke
Hampshire
RG22 4XD

Klub AMOS France
BP 133
18003 Bourges Cedex,
France

Tom Poulsen
Danish AMOS Group
Stenmollen 28
2640 Hedehusene
Denmark

AMOS Club Nederland
Kerkeind 8a
5293 AB Gemonde (NB)
Holland

Belgium Club
Johan Francois
Wilgenpark 7
9900 EEKLO
Belgium

AMOS Club USA
Mark H. Budziszewski & Mark A. Shultz
PO Box 11434
Milw.
WIS 53211,
USA

AMOS NTSC Club
David Lazarek
516 E 11th Street
Michigan City
IN 46360,
USA

Aaron Wald
201-19 Tonnele Avenue
Jersey City
NJ 07306,
USA

Deutsche
Carsten Bernhard
Asternweg 4
6229 Walluf
Germany

Portugal
Eduardo David
Rua Nina Marques Pereira N 9 2 - Esq
1500 Lisboa
Portugal

WIN A STACK OF DISKS

How do you fancy putting your new found knowledge to the test? How would you like to win 30 – yes THIRTY disks of your choice from the AMOS PD Library? Like the sound of that? Here's what you have to do. On the coverdisk is a program called 'Spidy.AMOS'. This is a very basic program based on a Mac program called *Neko*. At the moment, all that you do is tease a spider with the mouse pointer, trying to keep it out of its grasp while at the same time keeping it interested enough to chase. What we want you to do is soup it up.

Yes, you have the basic program, now see what you can do with it! Maybe the Spider should carry a rocket launcher? Maybe the screen should scroll? What do you think? You have complete freedom to do whatever you like. The best entry wins, it's as simple as that. So what are you waiting for! Get it together, and stick your entry on a disk and pop it off to us at CU with a covering letter explaining the changes made. Remember to mark your envelope 'Magnetic Media – Do Not Xray'. Send your disks to: I WANT ALL THAT LOVELY PD, CU Amiga, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. Closing date is 30th June. The editor's decision is final and no correspondence will be entered into. Employees of EMAP Images or the AMOS PD Library are not allowed to enter, although we can't figure out who from the AMOS PD Library would want to. After all, they've already got the disks, haven't they?

USER GROUPS



HAVE YOU HAD YOUR SAY ABOUT CU AMIGA?

Elsewhere in this issue we've printed a CU AMIGA questionnaire. This is a survey to find exactly what you think of the mag. It's not intended to be a space filler – we really want e one of you to fill it in and send it off to us. YOUR views on CU AMIGA couldn't be more im tant, as it's only through your input that we can get an idea about what you want to see in mag. You've probably noticed a lot of changes to CU AMIGA over the last few months. Mo these were a direct result of your responses to last year's survey. For instance, Art Gallery Club Call were both included because you asked for them. The same goes for Graphics Amiga Profiles and our expanded letters pages. So don't just sit there thinking it doesn't m ter, grab a pen and start filling in that questionnaire now! Ta.

GAMES PROGRAMMERS AND GRAPHIC ARTISTS WANTED

A new games company urgently seeks innovative new games to publish! If you've alwa wanted to break into the software industry, we're here to help. We might be a new comp but we've got years of experience in the field of computer entertainment, so if you've got new game that you think could make waves in the computer press, why not drop us a line show us how good you really are. We offer the best royalty payment scheme of any softw house and will endeavour to promote your game to the best of our abilities through above below the line promotions. Send your demos to:

METRO GAMES, c/o CU AMIGA, 30-32 Farringdon Lane, Farringdon, London, EC1R 3